



cancer.org | 1.800.227.2345

Getting Oral or Systemic Radiation Therapy

What is systemic radiation therapy?

Systemic therapy involves treatment that travels through your entire body rather than being aimed at one area. Systemic radiation therapy uses radioactive drugs (called *radiopharmaceuticals* or *radionuclides*) to treat certain types of cancer, including thyroid, bone, and prostate cancer. These are liquid drugs made up of a radioactive substance. They can be given by mouth or put into a vein; they then travel throughout the body. Although these drugs travel through your whole body, they can find and collect in places where the cancer cells are located. This helps them deliver radiation doses exactly to the tumor or area where the cancer cells are found.

In some cases, a radioactive drug might be used to help find cancer, such as bone metastasis (when cancer has spread to the bone). There are also radioactive drugs that are used to help diagnose other non-cancer health problems.

Radioimmunotherapy

One type of radiopharmaceutical is called *radioimmunotherapy*. This treatment combines a small amount of radioactive material with a special drug called a [*monoclonal antibody*](#)¹. The radioactive material acts as a tracer that can find and attach to cancer cells, then the monoclonal antibody is delivered directly to the cells.

Peptide receptor radionuclide therapy (PRRT)

Another type of radiopharmaceutical is called *peptide receptor radionuclide therapy (PRRT)*. This treatment combines radioactive material with a special protein called a *peptide* to make a *radiopeptide*. When given, the radiopeptide finds and attaches to

certain types of cancer cells, then delivers a high dose of radiation directly to the cells.

Will I be radioactive during or after systemic radiation treatment?

Systemic radiation uses an *unsealed* radioactive substance that goes through your whole body. Because of this, some radiation will be in your body for a few days until your body has had a chance to get rid of it. You may need to stay in the hospital for 1 or 2 days, and may need to take special precautions at home. The drugs are kept in special containers that hold the radiation inside, and you'll be treated in a shielded room that also keeps the radiation inside. The health providers handling the drugs will wear safety gear that protects them from exposure while giving you the radioactive drug.

Patient and family safety

Sometimes safety measures are needed to protect the people around you from the systemic radiation in your body. This is because the radioactive materials can leave your body through saliva, sweat, blood, and urine, and that makes these fluids radioactive. It's very important to keep radiation exposure to the people around you as limited as possible.

It's important to remember that every patient is different, and your safety instructions may be different from other patients or people you know who have received radiation therapy to treat cancer. What you might need to do depends on what exactly is used in the treatment and how much of it is used. Your cancer care team will give you exact instructions so you know what steps to take and how long any precautions need to be followed. You should follow their instructions exactly.

In most cases, the safety precautions must be followed only the first few days after treatment. To learn more, see [Radiation Therapy Safety](#)².

It's very important to be sure you understand what you need to do to protect the people around you. Talk to your cancer care team about your specific situation.

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy/monoclonal-antibodies.html
2. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation/safety.html

References

- American College of Radiology and the Radiological Society of North America. *Introduction to cancer therapy (radiation oncology)*. Accessed at https://www.radiologyinfo.org/en/info.cfm?pg=intro_onco#part_two on December 26, 2019.
- American College of Radiology and the Radiological Society of North America. *Radiation therapy*. Accessed at <https://www.radiologyinfo.org/en/submenu.cfm?pg=onco> on December 26, 2019.
- Drapek L. Radiation therapy. In Newton S, Hickey, Brant, JM, eds. *Mosby's Oncology Nurse Advisor*. 2nd ed. St Louis, MO: Elsevier; 2017:168-171.
- Forshaw K, Hall AE, Boyes AW, et al. Patients' experiences of preparation for radiation therapy: A qualitative study. *Oncol Nurs Forum*. 2017; 44(1):E1-E9.
- Iwamoto RR, Haas ML, Gosselin TK (Eds). *Manual for radiation oncology nursing practice and education*. 4th ed. Pittsburgh, PA: Oncology Nursing Society; 2012.
- Morgan MA, TenHaken RK, Lawrence TS. Essentials of radiation therapy. In DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer Principles and Practice of Oncology*. 11th ed. Philadelphia, PA: Lippincott, Williams, & Wilkins; 2018:196-217.
- National Cancer Institute (NCI). *Radiation therapy to treat cancer*. Accessed at <https://www.cancer.gov/about-cancer/treatment/types/radiation-therapy> on December 26, 2019.

Last Medical Review: December 27, 2019 Last Revised: December 27, 2019

Written by

The American Cancer Society medical and editorial content team
(www.cancer.org/cancer/acs-medical-content-and-news-staff.html)

Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

American Cancer Society medical information is copyrighted material. For reprint requests, please see our Content Usage Policy (www.cancer.org/about-us/policies/content-usage.html).

cancer.org | 1.800.227.2345