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## Getting Internal Radiation Therapy (Brachytherapy)

Internal radiation is also called *brachytherapy*. A radioactive implant is put inside the body in or near the tumor. Getting the implant placed is usually a painless procedure. Depending on your type of cancer and treatment plan, you might get a temporary or a permanent implant.

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### What is internal radiation therapy?

Internal radiation therapy (brachytherapy) allows a higher dose of radiation in a smaller area than might be possible with external radiation treatment. It uses a radiation source that's usually sealed in a small holder called an implant. Different types of implants may be called **pellets, seeds, ribbons, wires, needles, capsules, balloons, or tubes**. No matter which type of implant is used, it is placed in your body, very close to or inside the tumor. This way the radiation harms as few normal cells as possible.

- During **intracavitary** radiation, the radioactive source is placed in a body cavity (space) , such as the rectum or uterus.
- With **interstitial** radiation, the implants are placed in or near the tumor, but not in a body cavity.

## How are implants placed in the body?

The implant procedure is usually done in a hospital operating room designed to keep the radiation inside the room. You'll get anesthesia, which may be either general (where drugs are used to put you into a deep sleep so that you don't feel pain) or local (where part of your body is numbed).

One or more implants is put into the body cavity or tissue with an applicator, usually a metal tube or a plastic tube called a *catheter*. Imaging tests (an x-ray, ultrasound, MRI, or CT scan) are usually used during the procedure to find the exact place the implant needs to go.

Before being placed, implants are kept in containers that hold the radiation inside so it can't affect others. The health professionals handling the implants may wear special gear that protects them from exposure once the implants are taken out of the container.

## How long do implants stay in place?

The length of time an implant is left in place depends on the type of brachytherapy you are getting. Some implants are permanent, while others are taken out after a few minutes or days. The type of implant you get will depend on the kind of cancer, where it is in your body, your general health, and other treatments you have had. If an implant is permanent, the radiation fades over time and at some point won't give off any more radiation.

### High-dose rate brachytherapy

High-dose-rate (HDR) brachytherapy allows a person to be treated for several minutes at a time with a powerful radioactive source that's put in the applicator. The source is removed after 10 to 20 minutes. This may be repeated twice a day over a few days, or once a day over the course of a few weeks. The radioactive material is not left in your body. The applicator might be left in place between treatments, or it might be put in before each treatment.

People getting HDR sometimes stay in the hospital if it involves multiple day treatments and if the applicator is left in place. There may be special precautions to take after the treatment, so be sure to talk to the cancer care team about this.

### Low-dose-rate brachytherapy

In this approach, the implant gives off lower doses of radiation over a longer period.

Some implants are left in from 1 to a few days and then removed. You'll probably have to stay in the hospital, sometimes in a special room, during treatment. For larger implants, you might have to stay in bed and lie still to keep it from moving.

Some smaller implants (such as the seeds or pellets) are left in place and never taken out. Over the course of several weeks they stop giving off radiation. The seeds or

short time.

If you have a temporary implant, you'll be asked to stay in the hospital and might have to limit visitors during treatment. You also may be asked to stay a certain distance away from them. Pregnant women and children might not be allowed to visit you. Depending on the type of implant, once it is removed, your body will likely no longer give off radiation.

Over a few weeks to months, permanent implants will slowly stop giving off radiation. The radiation usually doesn't travel much farther than the area being treated, so the chances that others could be exposed to radiation is very small. Still, your health care team might ask you to take certain precautions such as staying away from small children and pregnant women, especially right after you get the implants.

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