# Pancreatic Cancer: Radiation Therapy

## What is radiation therapy?

Radiation therapy uses high-energy beams from X-rays or particles to kill cancer cells.

## When might radiation be used?

Radiation can be part of the treatment for pancreatic cancer. Here are some reasons your healthcare provider may advise it:

- **Before surgery** to try to shrink a tumor. This may allow your surgeon to remove all of the cancer. This is called neoadjuvant therapy. When radiation is used before surgery, it's often given along with chemotherapy.
- **After surgery** to try to kill any cancer cells left. This is called adjuvant therapy. When radiation is used after surgery, it's often given along with chemotherapy.
- **Instead of surgery** to treat pancreatic cancer when it's spread beyond the pancreas to other parts of the body or has become too extensive locally that surgery would be inappropriate. This might be the main treatment, often given along with chemotherapy.
- **As supportive (palliative) care** to ease symptoms caused by tumors that can't be treated with surgery such as pain, bleeding, and obstructive symptoms or that have spread to other organs.

To make your treatment plan, you'll likely meet with a team of cancer specialists. This might include a surgeon, radiation oncologist, and medical oncologist.

## What happens during radiation?

The most common way to get radiation for pancreatic cancer is from a machine outside your body that gives off invisible X-ray beams. This is called external radiation. You may need a special type of external radiation, such as:

- 3-D conformal radiation therapy
- Intensity-modulated radiation therapy
- Stereotactic radiosurgery (pinpoints high doses of radiation therapy)

These types of external radiation shape the radiation beams to the shape of the tumor. They're used to try to limit the radiation doses reaching and damaging nearby normal cells and other organs.

A healthcare provider who specializes in cancer and radiation is called a radiation oncologist. This healthcare provider works with you to figure out the kind of radiation you need. They also decide the dose and how long you need the treatment.

In most cases, you can get external radiation as an outpatient at a hospital or clinic. The standard treatment for external radiation is 5 days a week for several weeks.

# Preparing for radiation

Before your first radiation treatment, you'll have a session to find exactly where on your body the radiation beams need to be directed. The process is called simulation. This session may take up to 2 hours. During this time, you may get imaging tests, such as an MRI, CT scans, or PET/CT scan. These help your healthcare providers know the exact spot of your tumor to better aim the radiation.

Also at this session, you may have body molds made to help put you in the same position and keep you from moving during treatment. Then you'll lie still on a table while a therapist uses a machine to define your treatment field. The field is the exact area on your body where the radiation will be aimed. Sometimes it's called the treatment port. The therapist may mark your skin with tiny dots of semipermanent ink or tattoos. This is so that the radiation will be aimed at the same place each treatment.

## On the days you get radiation

On the days you get radiation, you'll lie on a table while the treatment machine is placed over you. You may have to wear a hospital gown. Treatment is a lot like getting an X-ray, only it takes longer–about 15 to 30 minutes. You should plan on being there for about an hour total.

At the start of the session, a radiation therapist may use blocks or shields to protect parts of your body that don't need to be exposed to radiation. The therapist then lines up the machine so that radiation is directed to the spot that was marked during the simulation. You may see lights on the machine that are lined up with the marks on your skin. When you're ready, the therapist leaves the room and turns the machine on. You may hear whirring or clicking noises, like the sounds of a vacuum cleaner, while it's being given. You may be asked to hold your breath for a short time. During the session, you'll be able to talk to and hear the therapist over an intercom. You can't feel radiation, so it doesn't hurt. You won't be radioactive afterward.

### What to expect after radiation

Because radiation also affects normal cells as well as cancer cells, you may have side effects from it. The side effects from radiation are often limited to the area being treated. Some people have few or no side effects. If you have them, your healthcare provider may change your radiation dose or how often you get treatment. Or they may hold off treatment until the side effects clear up. Most often, however, the side effects are mild and your healthcare provider will help you to manage the symptoms so you can continue treatment. Tell your provider about any changes you notice or side effects you have.

## Potential side effects

Common side effects of radiation include:

- Skin irritation or changes in the areas on your skin that get radiation, it may redden, blister, and peel like a bad sunburn
- Nausea and vomiting
- Diarrhea
- Loss of appetite
- Weight loss
- Severe tiredness (fatigue)
- Low blood counts

If you have any of these side effects, ask your healthcare provider how to deal with them. Ask how to know when they become serious and when they should be reported. These side effects often go away over time once treatment is finished. Many times, side effects can be treated.

Ask your healthcare provider what problems to watch for and when to call. Know how to get help after office hours and on weekends and holidays.