# Cancer of Unknown Primary: Radiation Therapy

## What is radiation therapy?

Radiation therapy uses high-energy beams of X-rays or particles to kill cancer cells or make them grow slower. It can also harm normal cells near the tumor. This can cause side effects.

## When might radiation therapy be used to treat cancer of unknown primary?

Radiation may be used to treat the symptoms of cancer of unknown primary (CUP), such as pain or bone fractures caused by tumors. Sometimes radiation is used after lymph node surgery or to treat small tumors in the lungs or brain.

To plan your treatment, you'll meet with a team of cancer specialists. This might include a surgeon, a medical oncologist, and a radiation oncologist. A healthcare provider who specializes in treating cancer with radiation is called a radiation oncologist. This healthcare provider works with you to decide the kind of radiation you need. They also figure out the dose and how long you need to get treatment.

## How is radiation therapy given for cancer of unknown primary?

There are two ways radiation may be given for CUP: external beam radiation or internal radiation. The type of radiation used depends on where the tumor is, how big it is, and if the cancer has spread. External beam radiation therapy is most often used.

# External radiation

The most common way to get radiation for CUP is from a large machine that focuses beams of radiation at the cancer. This is called external beam radiation. Sometimes special types of external beam radiation, such as intensity-modulated radiation therapy, are used. This is done to try to limit the amount of radiation that reaches and damages nearby normal cells.

Each treatment is a lot like getting an X-ray. This means you don't see the radiation or feel the beam, but it takes longer, up to 15 to 30 minutes. You should plan on being there for about an hour total. You'll likely get treatments once a day, 5 days a week, Monday to Friday, for many weeks.

## Getting ready for radiation

Before your first radiation treatment, you'll have an appointment called simulation. This is needed to find exactly where on your body the radiation beam needs to be directed. It may take up to 2 hours. During this session, imaging scans such as CT, MRI, or PET scans may be done. These scans help your treatment team know the exact location of the tumor so they can aim the radiation right at it. Also at this session, you may have body molds made to put you in the exact same position and help keep you from moving during treatments.

Then you'll lie still on a table while a radiation therapist uses a machine to take a scan and to define your treatment field. The field is the exact area on your body where the radiation will be aimed. Sometimes it's called your port. The therapist may mark your skin with tiny dots of semipermanent ink or tattoos. This is so the radiation will be aimed at the exact same place each time.

## On the days you get radiation

On the days you get treatment, you'll lie on a table while the machine rotates around you. You may have to wear a hospital gown. A radiation therapist will help you get into position and may use blocks or special shields to protect parts of your body from exposure to radiation. The therapist then lines up lights on the machine with the marks on your skin so the radiation is directed to the right spot.

When you’re ready, the therapist leaves the room and turns the machine on. You may hear whirring or clicking noises as the machine moves during radiation. This may sound like a vacuum cleaner. The machine won't touch you. During the session, you’ll be able to talk to and hear the therapist over an intercom. You can’t feel radiation, so the process will be painless. You won't be radioactive afterward.

## Internal radiation

Internal radiation isn’t often used to treat CUP. For this type of radiation, a needle or plastic catheter is put near or into the tumor to deliver a very focused dose of radiation right to the cancer cells. The radiation travels only a short distance. So it only affects the cells close to it. Sometimes surgery is needed to put the radiation in the right place. Internal radiation may be done along with external radiation.

### What are common side effects of radiation therapy?

Radiation affects both normal and cancer cells. This means it can cause side effects. The side effects you have depend on the part of your body that's treated. If you have side effects, your healthcare provider may change the dose of your radiation or how often you get treatment. Or treatment may be stopped until your side effects get better. Ask your healthcare provider what side effects you should watch for. Common side effects include:

- Mouth sores, irritation, dryness to the mouth
- Diarrhea
- Severe tiredness (fatigue)
- Nausea
- Skin irritation at the treatment field. Your skin may become dry, red, and blister like a sunburn.

In most cases, short-term side effects go away over time after treatment ends. Tell your healthcare provider about any side effects you have right away. It's important to treat them before they get worse.

Long-term side effects of radiation may not show up until years after you finish treatment. These depend on the dose and location of the radiation. They also depend on how many times you had treatment. Ask your healthcare provider what to expect.

### Working with your healthcare provider

Talk with your healthcare team about what signs to look for and when you should call them. For instance, radiation can harm your skin and make you more likely to get an infection. Know how to get help after office hours and on weekends and holidays.

It may be helpful to keep a log of your side effects. Write down physical, mental, and emotional changes. A written list will make it easier for you to remember your questions when you go to your check-ups. It will also make it easier for you to work with your healthcare team to manage your side effects.