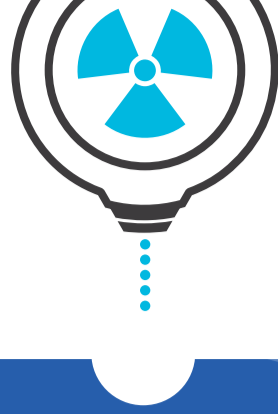


# A QUICK GUIDE TO RADIOTHERAPY



## WHAT IS RADIOTHERAPY?

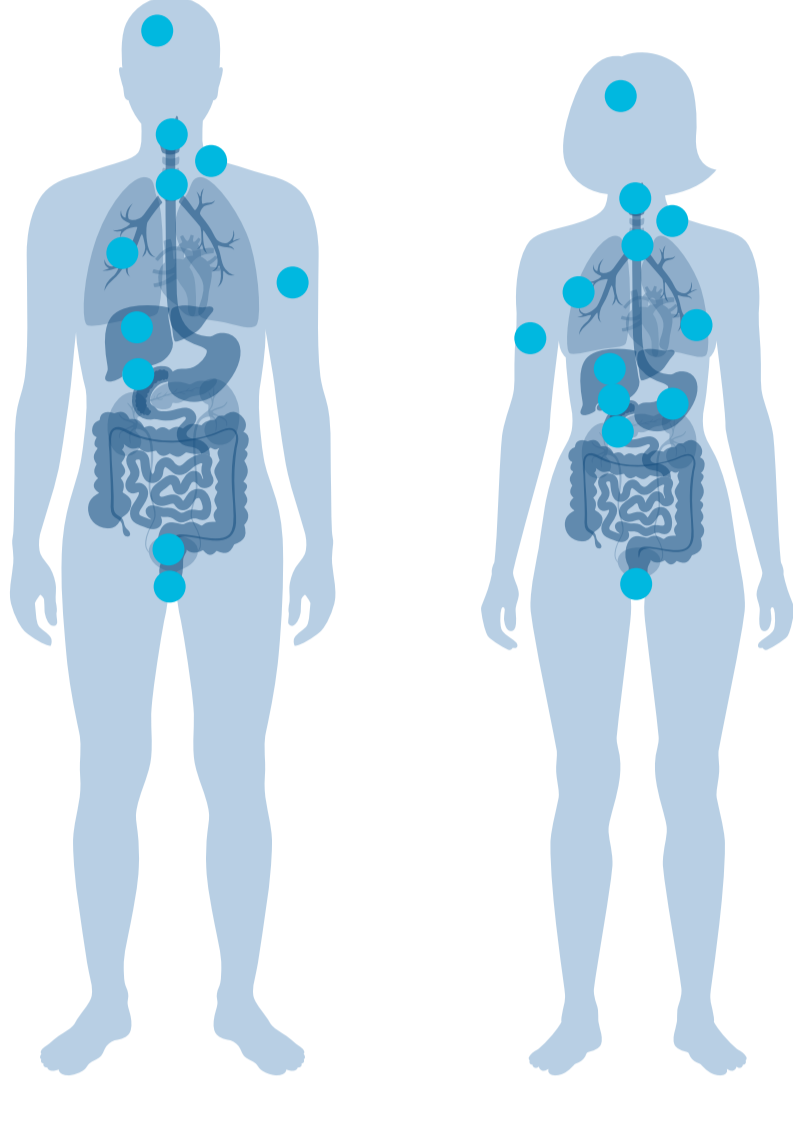
Radiation therapy, or radiotherapy, uses low- and high-energy X-rays, or other particles such as electrons or protons, to destroy cancer cells and slow tumor growth. Radiotherapy destroys the genetic material that controls how cells grow and divide.

**In 2021**  
**more than half**  
of people with cancer  
will receive some form  
of radiotherapy<sup>1</sup>

## WHEN IS RADIOTHERAPY USED?

Radiotherapy is used to treat just about every type of cancer, as well as tumor and disorders in the brain, including:

- Brain
- Breast
- Esophageal
- Gynecological
- Head and Neck
- Kidney
- Leukemia
- Liver
- Lung
- Lymphoma
- Pancreas
- Prostate
- Rectal
- Skin
- Spinal



### Primary tumors and metastases

In many cases, radiotherapy alone can effectively treat the cancer (curative therapy).

### Before or After Surgery

Radiotherapy can be used to shrink a tumor before surgery (neoadjuvant therapy) – or to stop the growth of potential remaining cancer cells after surgery (adjuvant therapy).

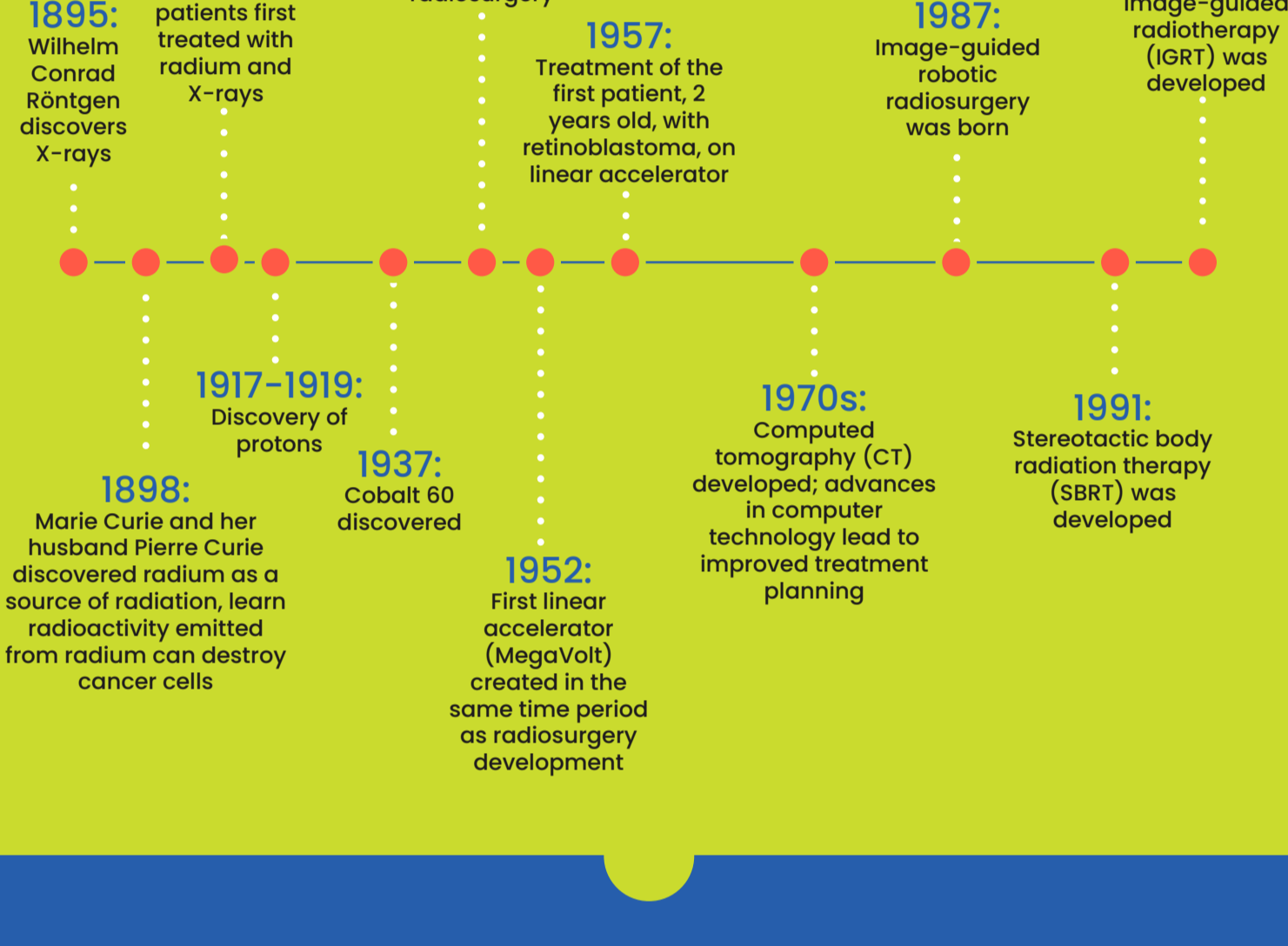
### With Chemotherapy

Radiotherapy is frequently used in combination with chemotherapy (also called adjuvant therapy).

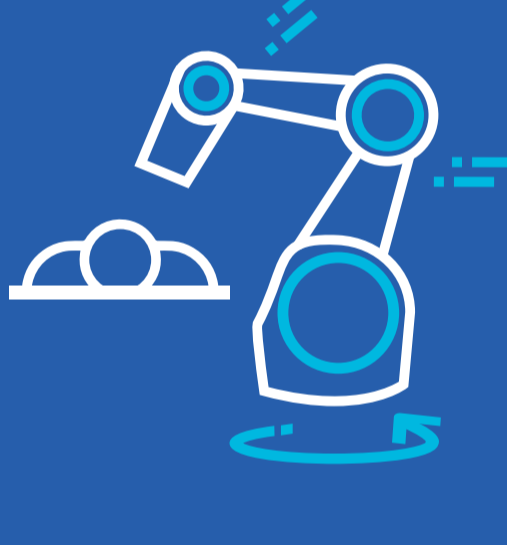
### To Alleviate Symptoms

Radiotherapy can shrink tumors to relieve pain, pressure and other symptoms that may impact patients' quality of life (palliative therapy).

## A SHORT HISTORY OF RADIOTHERAPY



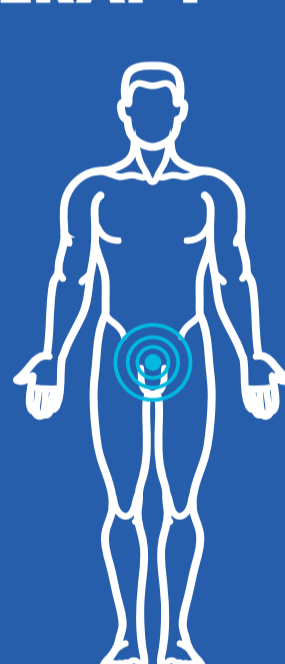
## TYPES OF RADIOTHERAPY



### External-Beam Radiotherapy

The most common type; radiation is delivered by an electron beam from outside the body using a machine called a linear accelerator (linac) that delivers the radiation beam (either X-ray photons or electrons).

Photon beam radiotherapy uses X-rays or gamma rays to treat cancer or brain tumors, while proton beam therapy uses positively charged particles.

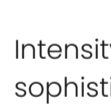


### Brachytherapy

An implant containing radiation is placed inside or near the tumor site. Brachytherapy involves the delivery of low- or high-doses of radiation through an implant placed inside or near the tumor site.

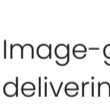
## Improving External Photon Beam Treatment Delivery Accuracy

Four key innovations have improved the precision of radiotherapy delivery:



### IMRT

Intensity-modulated radiotherapy (IMRT) uses sophisticated technology to shape the size and direction of radiation beams – and even adjust the intensity of each beam – to more precisely conform the radiation dose to the contours of the targeted tumor.



### IGRT

Image-guided radiation therapy (IGRT) involves delivering radiation guided by images of the treatment area taken shortly before and/or during treatment using CT scan, X-ray, ultrasound or other imaging technologies. By combining imaging with radiation treatment, physicians can adjust the patient's position relative to the radiation source prior to each treatment to target the tumor more precisely.



### RADIOSURGERY

Radiosurgery is a form of radiotherapy that uses precisely targeted high doses of radiation to destroy tumors. Radiosurgery is non-invasive; there is no incision involved. There are two types of radiosurgery: stereotactic radiosurgery (SRS) and stereotactic body radiation therapy (SBRT).



### SRS AND SBRT

SRS is used to treat conditions within the brain, while SBRT is commonly used to treat tumors outside the brain. SRS and SBRT typically involve the delivery of radiation in a single or a few treatments (usually up to five) to ablate (destroy) the tumor and minimize dose to healthy tissue.

## THE FUTURE OF RADIOTHERAPY



### PRECISE

Advances in imaging that make it easier to clearly see the tumor and software to create treatment plans that more accurately target the tumor will continue to improve the precision of radiotherapy treatment delivery – providing even better cancer control and further reducing the risk of side effects in both the short- and long-term.



### CONVENIENT

Hypofractionation – where significantly higher doses of radiation are delivered in fewer treatment sessions – is used to treat a growing number of types of cancer. Expanding use of hypofractionated treatments will provide cancer patients with an option for faster and less disruptive treatments.



### ACCESSIBLE

Continued adoption of radiotherapy systems with advanced capabilities will make precise and accurate treatments more accessible for more patients around the globe.

Learn more about how Accuray is shaping the future of radiotherapy – and redefining what's possible in the treatment of cancer.

**CYBERKNIFE®**

**RADIXACT®**



### Important Safety Statement:

Most side effects of radiotherapy, including radiotherapy delivered with Accuray systems, are mild and temporary, often involving fatigue, nausea, and skin irritation. Side effects can be severe, however, leading to pain, alterations in normal body functions (for example, urinary or salivary function), deterioration of quality of life, permanent injury and even death. Side effects can occur during or shortly after radiation treatment or in the months and years following radiation. The nature and severity of side effects depend on many factors, including the size and location of the treated tumor, the treatment technique (for example, the radiation dose), the patient's general medical condition, to name a few. For more details about the side effects of your radiation therapy, and if treatment with an Accuray product is right for you, ask your doctor.

Sources: <sup>1</sup> American Cancer Society, <https://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation/basics.html>, accessed August 18, 2021.