

# Proton Therapy for Patients with Cancer How Proton Therapy Can Help

# Powerful, precise targeting

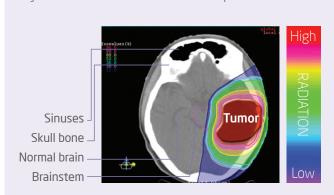
Northwestern Medicine Proton Center offers proton therapy, an advanced form of radiation treatment that precisely targets tumors/cancers. This precision minimizes damage to surrounding healthy tissue with the goal of fewer side effects.

### Effective in treating a broad range of tumors

Although tumors can be treated with surgery, chemotherapy and standard X-ray radiation, proton therapy can be particularly beneficial for patients with certain types of cancer and some non-cancerous tumors. The ability of protons to deposit more energy directly in the tumor makes proton therapy ideal for patients whose tumors are near critical organs or structures.

# Treatment with protons

Grey/white area indicates no radiation exposure.





# Proton therapy can help treat:

Brain tumors Head and neck tumors

Base-of-skull tumors Prostate cancer

Pediatric tumors Tumors near the spine

Melanoma of the eye Lung tumors

Pituitary gland tumors Breast tumors

Gastrointestinal cancers, including liver, esophageal and pancreatic

#### Beneficial for children

Children's bodies are still growing. This means they can have more serious short-term and long-term side effects from X-ray radiation than adults.<sup>1,2</sup> Research shows that proton therapy can reduce the risk of developmental and growth delays and abnormalities, reductions in IQ and other issues often linked with standard X-ray radiation. This is why proton therapy is often preferred when children need radiation treatment.

## Part of an expansive network

Northwestern Medicine Proton Center is part of the expansive Northwestern Medicine Cancer Care Network (nm.org/cancer). The care team at Northwestern Medicine will review all your treatment options and collaborate with you to make the best, informed treatment decision.

- Mizumoto M, et al. Proton beam therapy for children and adolescents and young adults (AYAs): JASTRO and JSPHO Guidelines. Cancer Treat Rev. 2021 Jul; 98:102209. doi: 10.1016/j.ctrv.2021.102209. Epub 2021 Apr 16. PMID: 33984606.
- Greenberger BA, Yock TI. The role of proton therapy in pediatric malignancies: Recent advances and future directions. Semin Oncol. 2020 Feb;47(1):8-22. doi: 10.1053/j. seminoncol.2020.02.002. Epub 2020 Feb 21. PMID: 32139101.

# Proton Therapy for Patients with Cancer (continued)

Factors that help the Northwestern Medicine Cancer Care Team determine if proton therapy is right for you, include your:

Age Tumor location

Tumor type Tumor staging

Previous radiation treatment

Some ways you may benefit from proton therapy:

Reduction of the short- and long-term side effects of radiation treatment

Precise targeting of tumors and cancer cells

Less radiation to surrounding healthy tissue and organs

Limitation of radiation induced secondary tumor

Ability to treat in an area that has received prior radiation

Improved quality of life during and after treatment

#### Talk to your physician about your treatment options

The first step in your treatment plan is to discuss your options, including proton therapy, with your physician to determine the best treatment for you.



Questions to ask your physician

Is proton therapy an option for me? What are the pros and cons?

How does proton therapy compare with my other options?

What short-term and long-term side effects can I expect with each treatment option?

How long would my treatment last at each appointment and the entire course?

Where do I receive proton therapy?

Once I have decided a course of treatment, what are the next steps?

#### Frequently asked questions

Can proton therapy be used with other forms of cancer treatment?

Yes. Depending on the diagnosis, proton therapy may be used with conventional radiation, chemotherapy, hormone therapy and/or as a follow-up to surgery.

Is proton therapy covered by most insurance plans?

Depending on the tumor type, proton therapy is covered by many insurance plans and Medicare. The team at the Northwestern Medicine Proton Center will work with you and your insurance provider.

What will I feel like during my proton therapy treatments? What are the side effects?

There is usually no to minimal discomfort or sensation during the actual radiation treatment. The short-term and late side effects will depend on the site of the radiation, and will be managed with medications and other recommendations from your doctor.

To learn more, visit protoncenter.nm.org, or call 877.887.5807 (TTY: 711).