

# Proton Therapy for Patients with Cancer

## How Proton Therapy Can Help

### Powerful, precise targeting

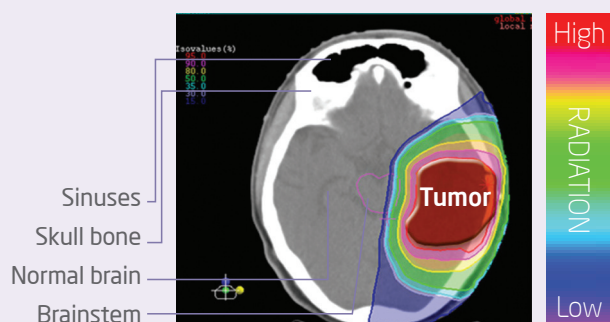
Northwestern Medicine Proton Center offers proton therapy, an advanced form of radiation treatment that precisely targets tumors/cancers. This precision minimizes damage to surrounding healthy tissue with the goal of fewer side effects.

### 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](https://www.northwesternmedicine.com/cancer) ([nm.org/cancer](https://www.northwesternmedicine.com/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.

