

# Proton Therapy Center



The Proton Therapy Center at Cincinnati Children's Hospital Medical Center offers the most advanced form of radiation therapy available. Our experienced team is taking proton therapy technology to the next level, using novel new treatment approaches that improve outcomes for patients, even those with the most difficult-to-treat tumors. Our Varian ProBeam® pencil beam technology destroys cancer cells while minimizing damage to surrounding healthy tissues and organs. As a result, patients typically experience fewer short-term side effects and long-term complications than they do with traditional radiation therapy. This is especially important for children, adolescents and young adults, whose bodies are still growing and developing.

## CONTACT US

For patient referrals and non-urgent consultation during business hours, contact the program directly at:

Phone: **513-636-2866**  
Email: [proton-therapy@cchmc.org](mailto:proton-therapy@cchmc.org)

**For international inquiries:**

Phone: **+1-513-636-3100**  
Email: [international@cchmc.org](mailto:international@cchmc.org)

[www.cincinnatichildrens.org/proton](http://www.cincinnatichildrens.org/proton)

## HOW WE'RE DIFFERENT

The Proton Therapy Center is one of a few proton therapy centers in the United States that is owned by a children's hospital. Our team specializes in pediatric cancer care, and offers comprehensive services including inpatient and outpatient medical oncology clinics, pharmacy services, medical imaging, laboratory testing, central line care, emergency medicine, child life and rehabilitation services. Everything is available under one roof, which means inpatients do not need to travel via medical transport to receive the care they need.

As part of the Cincinnati Children's Cancer and Blood Diseases Institute, the Proton Therapy Center offers:

- **Experience:** The Proton Therapy Center has provided treatment to over 500 patients since opening in 2016.
- **Support for Families Traveling from Out of Town:** Our proton therapy intake coordinator helps manage all aspects of travel for out-of-town patients and families. This includes identifying the housing and transportation options that best fit each family's needs and seeking philanthropic funding to defray travel and lodging expenses.
- **Fertility Preservation Services:** Specialists from our Comprehensive Fertility Care and Preservation Program help families understand how cancer therapy might affect a patient's ability to have children in the future, and what their fertility preservation options may be.
- **Rehabilitation Services:** Our inpatient pediatric cancer rehabilitation program is the first in the world to be accredited by the Commission on Accreditation of Rehabilitation (CARF). The program provides customized therapy based on each patient's specific needs and goals.
- **Specialized Care for Adolescents and Young Adults:** Cincinnati Children's offers a nationally recognized program to meet the unique needs of adolescents and young adults with cancer.
- **Educational Support:** Our school intervention specialists provide extensive services to help our patients maintain their academic skills.
- **Cutting-edge Research:** Our oncology physicians and researchers conduct numerous clinical research studies in hopes of improving the prognosis and quality of life for patients with cancer.



Cincinnati Children's is ranked #3 in cancer and #3 in the nation among Honor Roll hospitals.

## FIRST-IN-HUMAN FLASH RESEARCH TRIAL

The Cincinnati Children's Proton Therapy Center led the world's first clinical trial of FLASH radiation therapy for cancer, FAST-01 (FeAsibility Study of Flash Therapy for the Treatment of Symptomatic Bone Metastases). FLASH therapy uses radiation delivered at ultra-high dose rates, up to 1,000 times faster than what is used clinically today. The FLASH effect has the potential to reduce the normal tissue toxicities commonly associated with conventional radiotherapy, while still maintaining local tumor control. The FAST-01 trial enrolled 10 patients with painful bone metastases in their extremities.

Cincinnati Children's is also leading the second FLASH radiation clinical trial. The FAST-02 clinical trial is expected to enroll 10 patients with painful bone metastases in the thorax. The study aims to evaluate treatment-related side effects and efficacy of treatment, which will be assessed by measuring trial participants' pain relief.

Preclinical FLASH studies at Cincinnati Children's have focused on increasing tumor efficacy and reducing side effects for brain tumors, lung cancer, and cancers of the head and neck. Preliminary data from one preclinical study showed that FLASH demonstrates a double benefit compared to conventional proton treatments. In addition to killing lung cancer more efficiently, it activates an immune system response to lung cancer.

The Cincinnati Children's Proton Therapy Center has one-of-a-kind research facility with a fully operational proton treatment room dedicated exclusively for research along with integrated laboratories. The unique capabilities of the research center were instrumental in Cincinnati Children's developing the world's first clinical trial of FLASH proton therapy.

## PROTON THERAPY CENTER LEADERSHIP

John Perentesis, MD, FAAP  
Co-Executive Director,  
Cancer & Blood Diseases Institute

John Breneman, MD  
Medical Director,  
Proton Therapy Center

Anthony Mascia, PhD, DABR  
Director of Medical Physics  
Proton Therapy Center

## FULL SPECTRUM OF CONDITIONS TREATED

Proton therapy can be used to treat about 80 to 85% of all pediatric cancers that require radiation therapy for treatment. These include:

### Brain and Central Nervous System

- Astrocytoma
- Atypical teratoid rhabdoid tumors (ATRT)
- Craniopharyngioma
- Ependymoma
- Intracranial germ cell tumors (germinoma)
- Low grade glioma
- Medulloblastoma
- Meningioma
- Optic nerve tumors
- Optic pathway/hypothalamic glioma
- Primitive neuro-ectodermal tumor (intracranial PNET)
- Retinoblastoma

### Solid Tumors

- Chondrosarcoma
- Chordoma
- Ewing sarcoma
- Neuroblastoma
- Rhabdomyosarcoma
- Tumors of the head and neck
- Wilms tumor
- Non-rhabdo soft tissue sarcomas, including angiosarcoma, synovial sarcoma, epithelioid sarcoma and desmoplastic small round cell tumor

### Lymphoma

- Hodgkin's
- Non-Hodgkin's

## BENEFITS FOR REFERRING PHYSICIANS

- Telehealth connectivity for consults with patients and Cincinnati Children's providers
- Availability for participation in Tumor Boards
- Availability for participation in the treatment planning process
- Access to Cincinnati Children's Physics and Dosimetry staff
- Pediatric Proton Partner Program

**For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link® at 1-888-987-7997.**