

Proton therapy carries precise, potent punch against children's cancers

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The Children's Hospital of Philadelphia announces the availability of proton therapy, a precise form of cancer radiation that offers potentially life-changing benefits to children with brain tumors and other solid tumors. The Hospital's Cancer Center has recently begun using proton treatment at the new Roberts Proton Therapy Center, a cutting-edge radiation oncology facility located across the street from Children's Hospital in Penn Medicine's Perelman Center for Advanced Medicine.

With a child diagnosed with a brain tumor, parents often face a cruel dilemma. Conventional radiation treatment that offers survival often risks severe side effects, including damage to surrounding healthy tissue, as well as impairments to hearing, vision, growth and cognition. The after-effects may impede a child's daily life and may carry the prospect of lifelong disability and dependence. In fact, the side effects are potentially devastating enough that conventional radiation therapy is not given to children under age two.

The Roberts Proton Therapy Center is the only proton therapy facility in the country conceived with pediatric patients in mind from the earliest planning stages. Children who receive proton therapy in this \$140 million state-of-the-art facility benefit from a long-standing collaboration between Children's Hospital and radiation oncologists at Penn Medicine. Young patients experience family-focused pediatric care from a medical team who understands the unique needs of children with cancer, while providing emotional support for the entire family. Every detail has been considered-- from scheduling morning treatments for

children who cannot eat prior to anesthesia, to offering a dedicated child-oriented waiting room and a dedicated pediatric anesthesia room.

"When the Roberts Proton Therapy Center's pediatric program is fully operational, the Cancer Center at Children's Hospital will be able to treat more children with proton therapy than all other American proton centers combined, thereby reducing the negative impact of cancer therapy for children from the Philadelphia region and around the country" said John M. Maris, M.D., chief of Oncology and director of the Cancer Center at The Children's Hospital of Philadelphia.

With its extensive program of comprehensive services, the Cancer Center is one of the largest pediatric cancer programs in the United States. All cancer care is available at one location, including doctor's visits, lab work and a full range of therapies. In its most recent listings, U.S. News & World Report ranked Children's Hospital first in [cancer](#) care among America's children's hospitals.

In addition to its application for [brain tumors](#), proton therapy may also be appropriate for cancers of the head and neck, and tumors located near the spinal cord, heart and lungs—sites perilously close to vital organs.

The advent of proton therapy provides a dramatic reduction in side effects when compared to conventional radiation. Because protons can be more precisely aimed and concentrated on a tumor, much less energy impacts normal tissue in front of and behind the cancerous mass. At the same time, doctors may increase the radiation dose focused on the tumor for optimum benefits.

Protons are positively charged particles, found in the nucleus of every atom, but made available in this therapy by stripping away electrons from hydrogen atoms. Although commonly manipulated by physicists in high-energy particle accelerators in research settings since the mid-20th

century, protons are only gradually becoming part of medical practice. There are currently only seven [proton therapy](#) centers in the United States.

Provided by Children's Hospital of Philadelphia

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