



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP130368

Project Title:  
Proton Beam Radiation Therapy vs. Conventional Beam Radiation  
Therapy: Toxicities During & After Craniospinal Radiation Therapy in  
Children (Carson Leslie Award)

Award Mechanism:  
Individual Investigator

Principal Investigator:  
Ris, M Douglas

Entity:  
Baylor College of Medicine

### Lay Summary:

The number of survivors of pediatric brain tumors has greatly increased in the past two decades making it apparent that many are left with life-long physical and neurodevelopmental impairments secondary to life-saving treatments (particularly radiotherapy) received for their disease. An emerging radiotherapy technology using protons (Proton Beam Radiation Therapy; PBRT) rather than conventional photons or x-rays promises to reduce toxicity burden and improve outcomes and quality of life in survivors. Many herald the clinical potential of PBRT to minimize damage to healthy brain tissue and other organs of the body without sacrificing disease control. Still, there are no published reports to date of neurocognitive outcomes following PBRT for pediatric brain tumor. In this study, we propose to evaluate the full range of side-effects (e.g. fatigue, nausea/vomiting, hearing loss, cognitive skills, behavioral and emotional adjustment) experienced by children undergoing PBRT in the first year after initiation of treatment, and comparing these to the side effects experienced by children receiving conventional radiation therapy (CRT). We will also compare the financial costs associated with the two types of radiotherapy. This line of research will guide clinicians on the range of outcomes that can be expected following PBRT and stands to influence clinical care in four contexts: 1) decision making, 2) cost, 3) access, and 4) intervention.