Protecting young minds: understanding how radiation affects thinking and learning in children with brain tumors

Kids Cancer Care Curiosity Lab
September 18, 2026

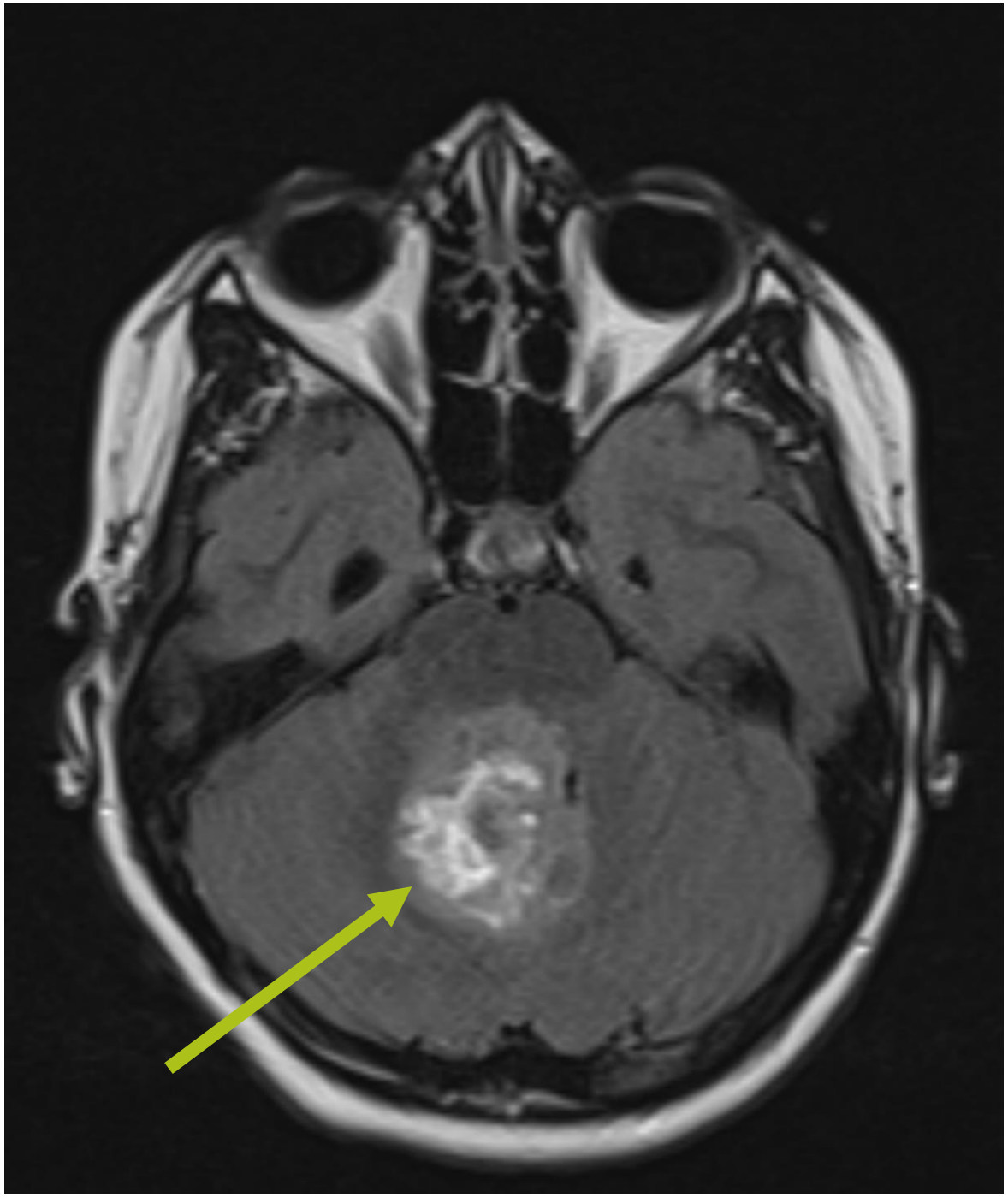
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Arthur J.E. Child Comprehensive Cancer Centre

kids cancer care

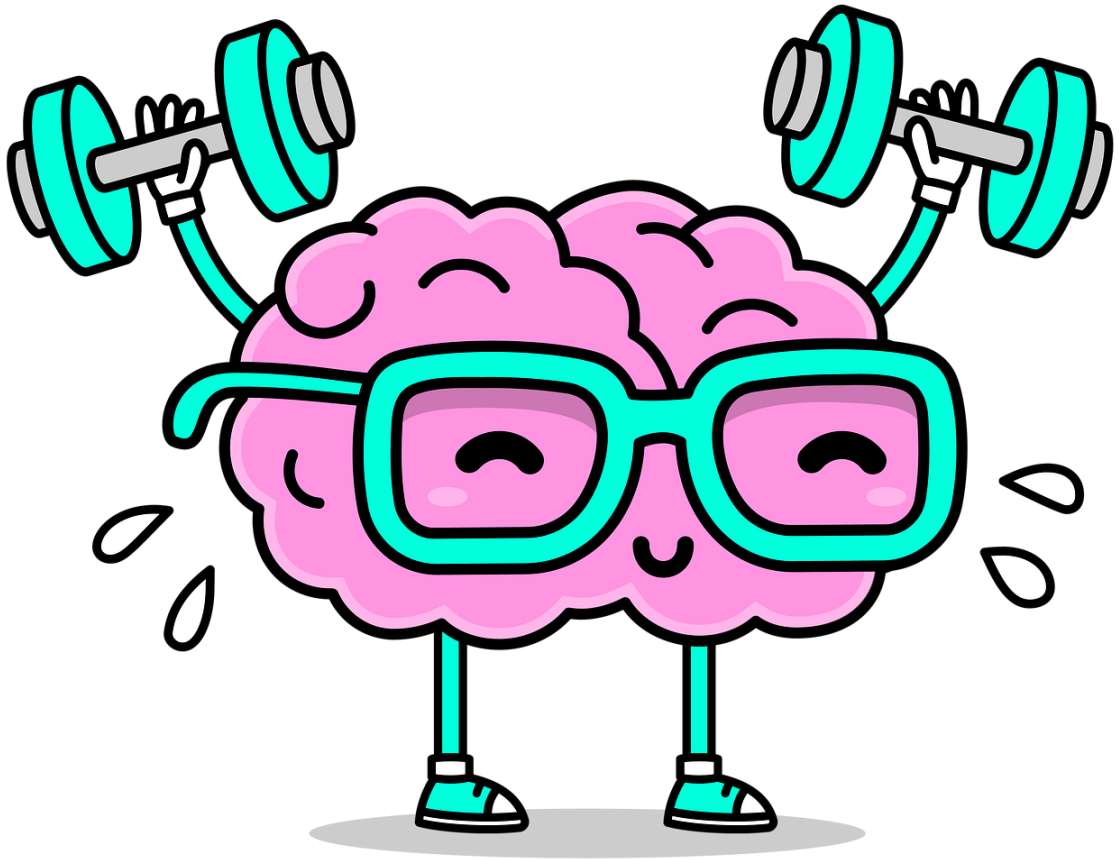
A Case



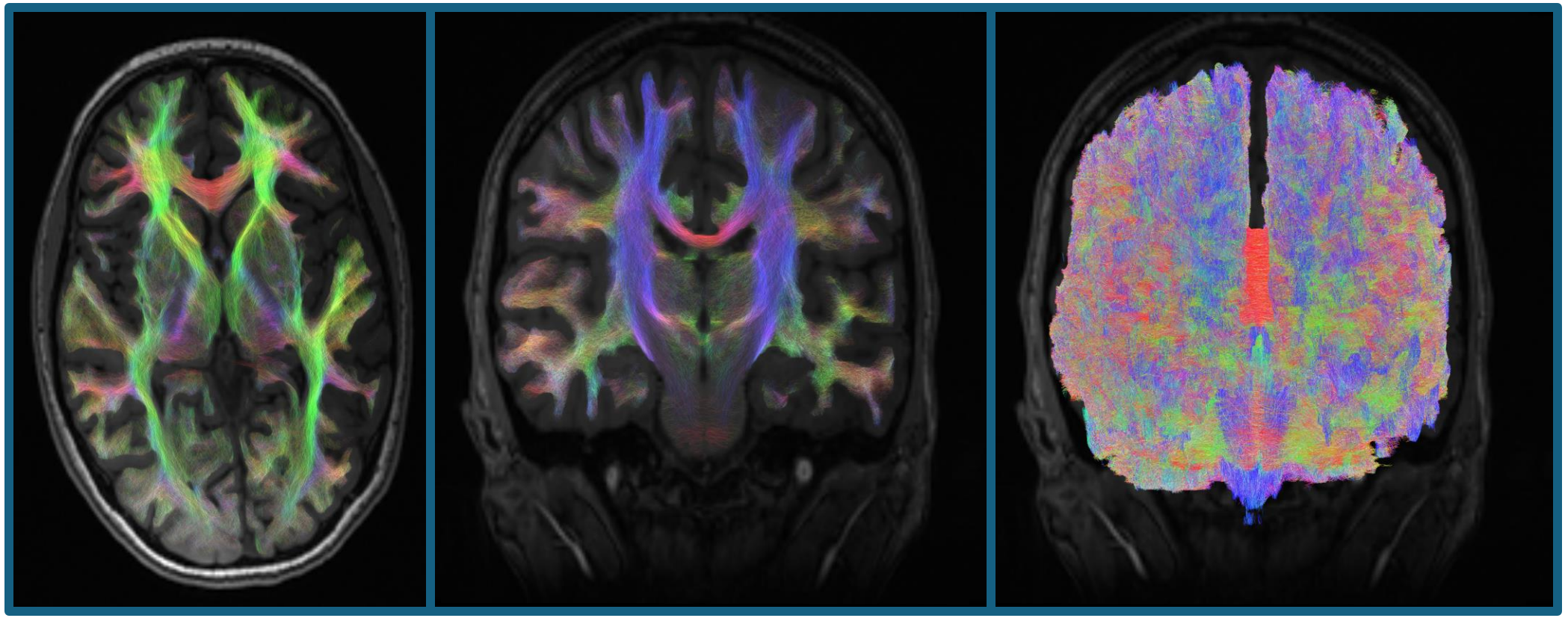




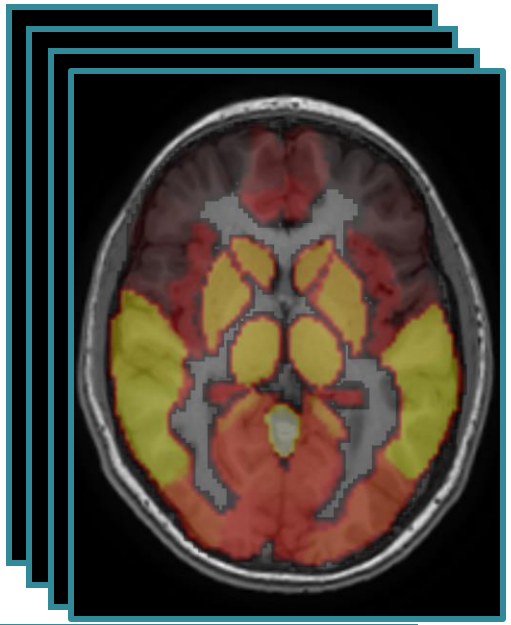
The Developing Brain

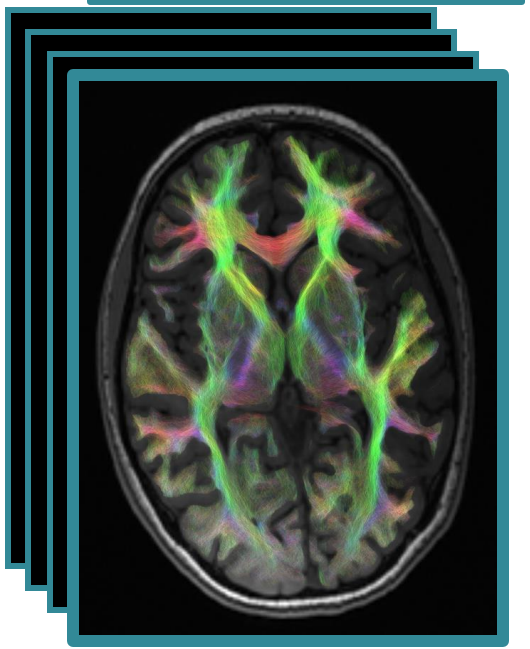


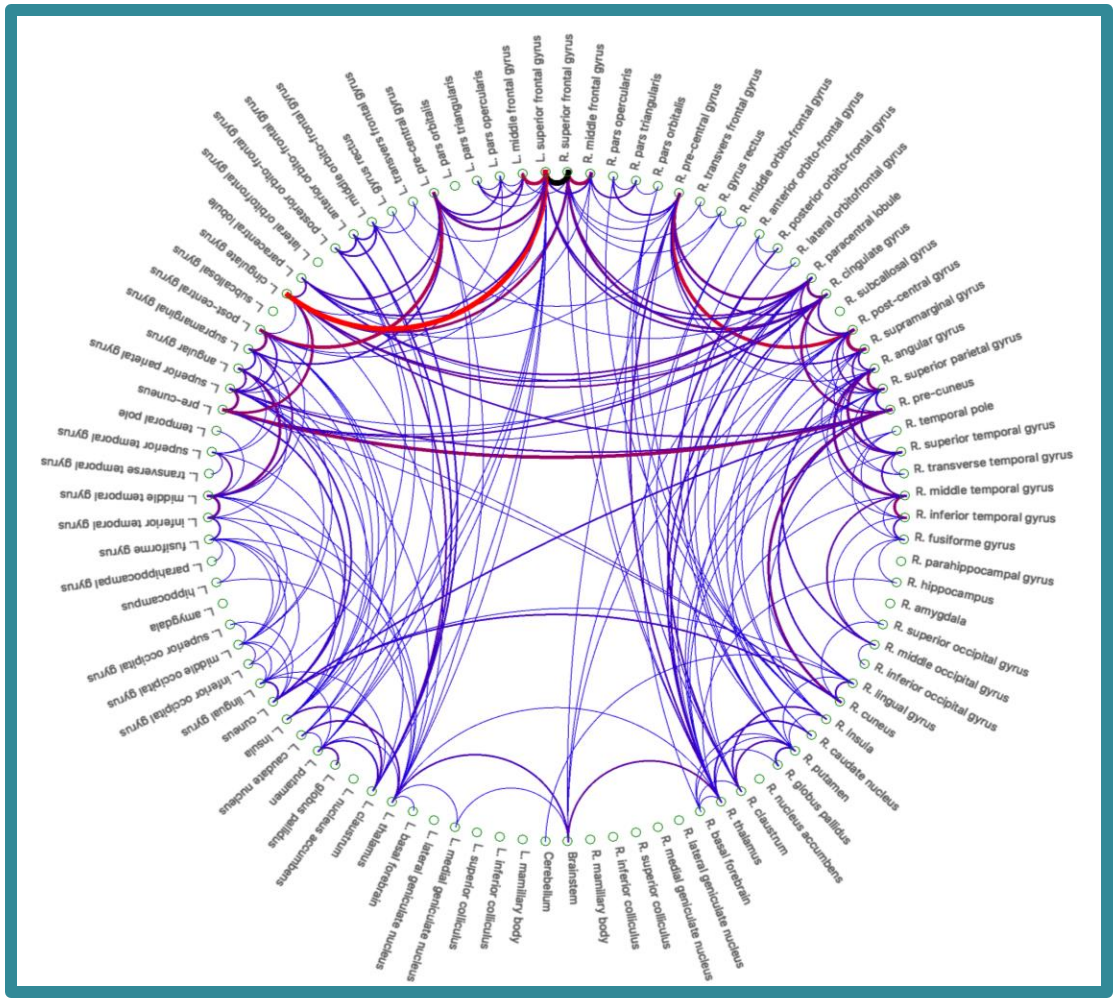
A Picture is Worth a Thousand Words



Roadmap of the Brain's Connections



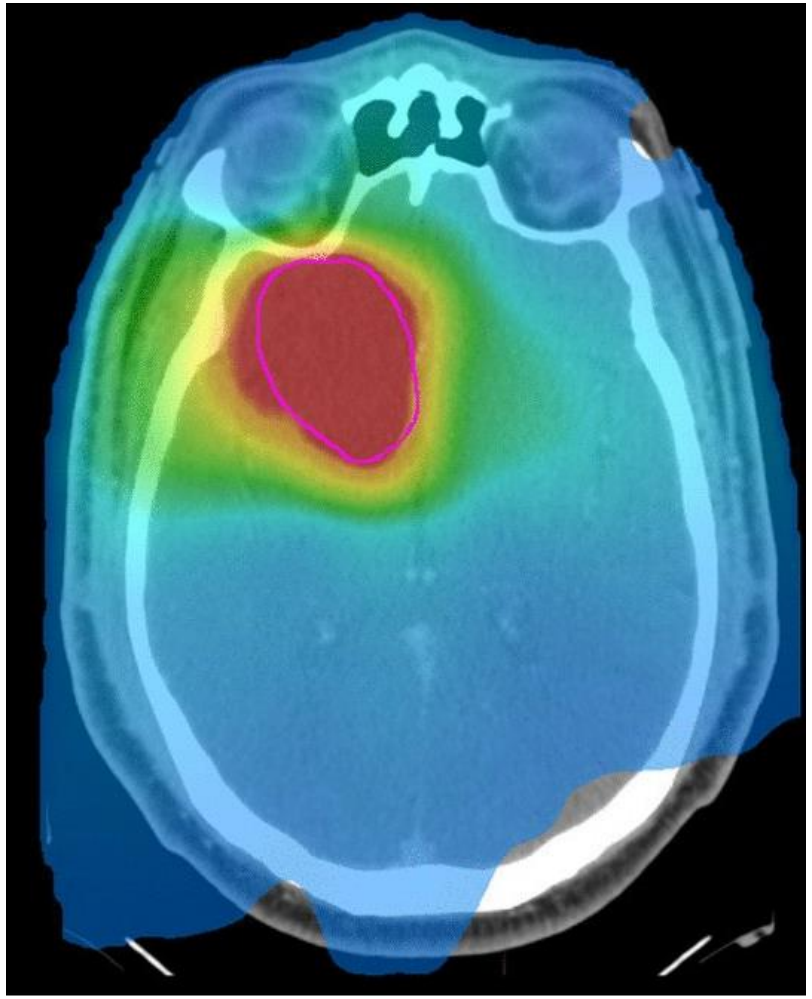




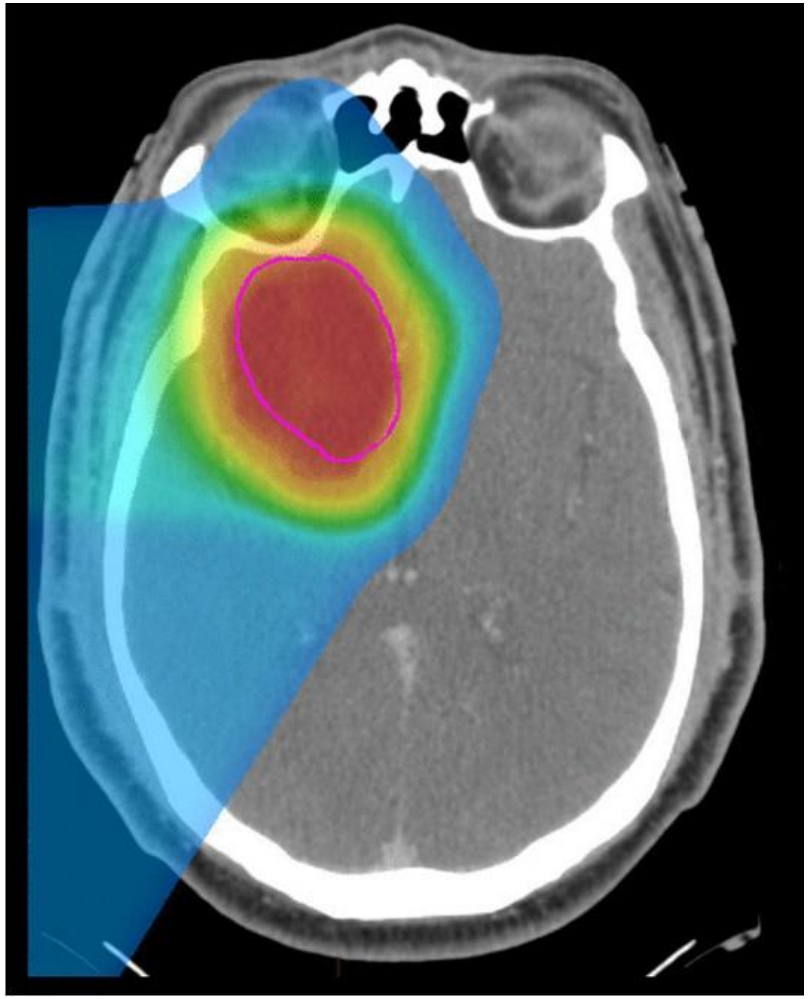


Can we do better already?

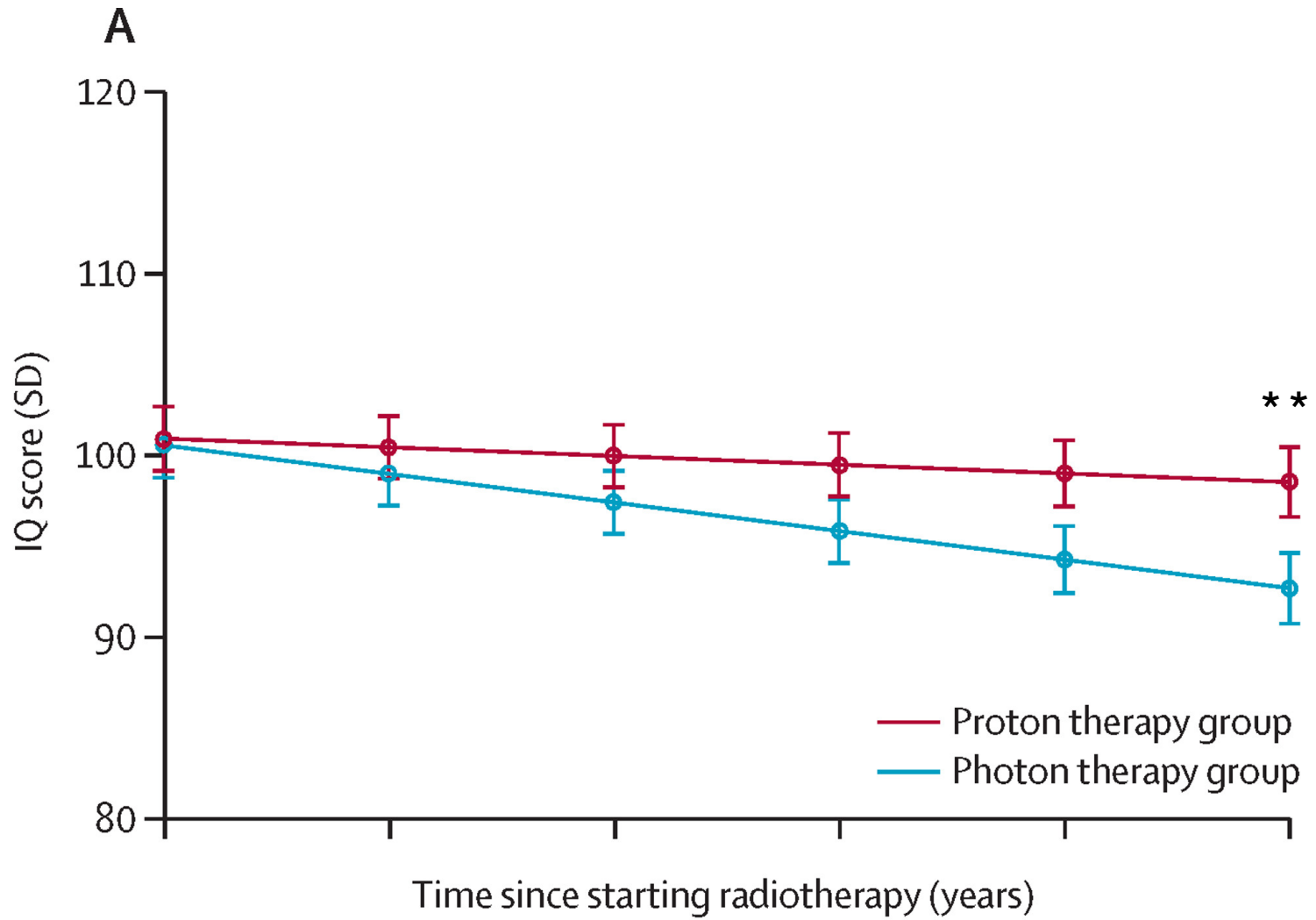
Photon Radiation



Proton Radiation



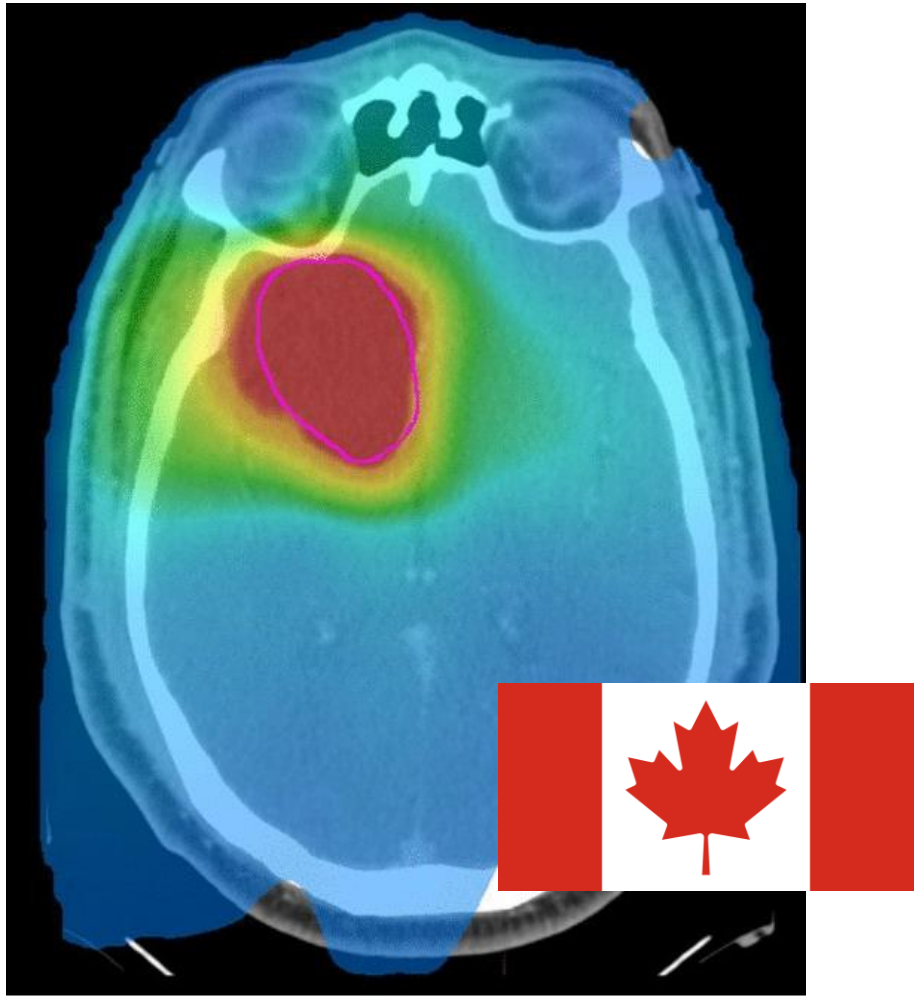
Photon versus Proton Therapy and IQ



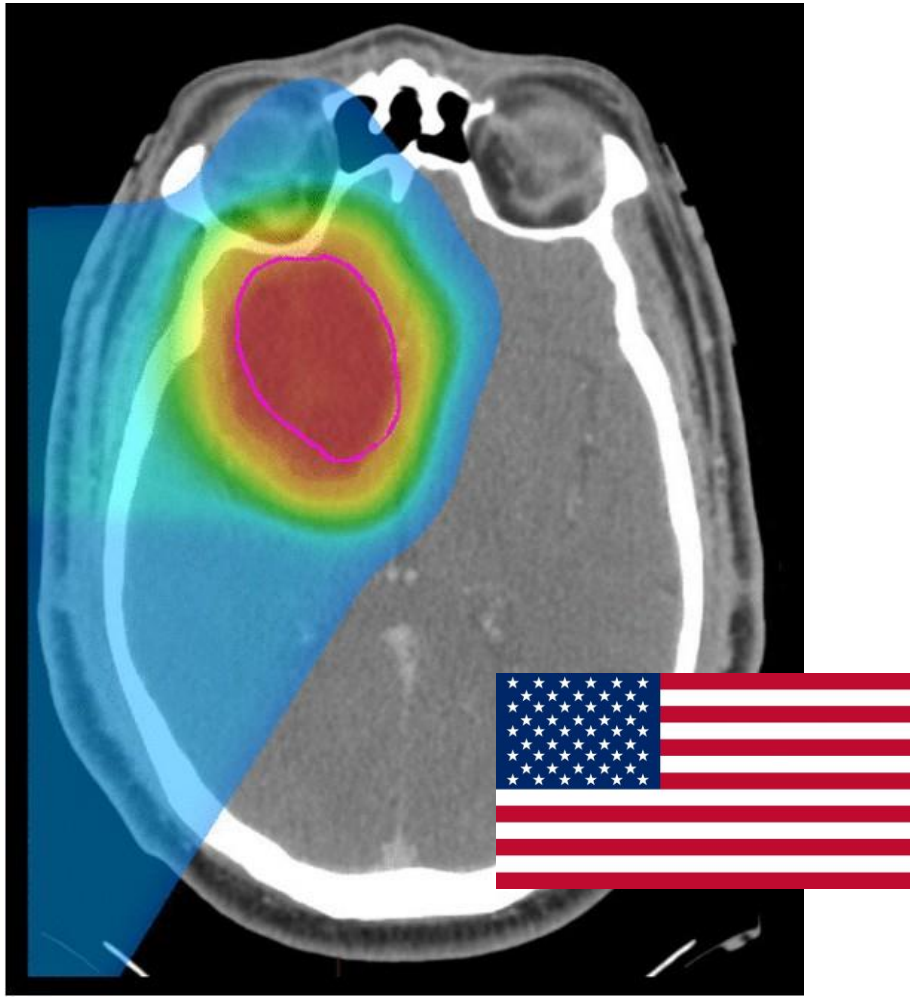
Merchant et al., 2023
Kahalley et al., 2019

Can we do better already?

Photon Radiation

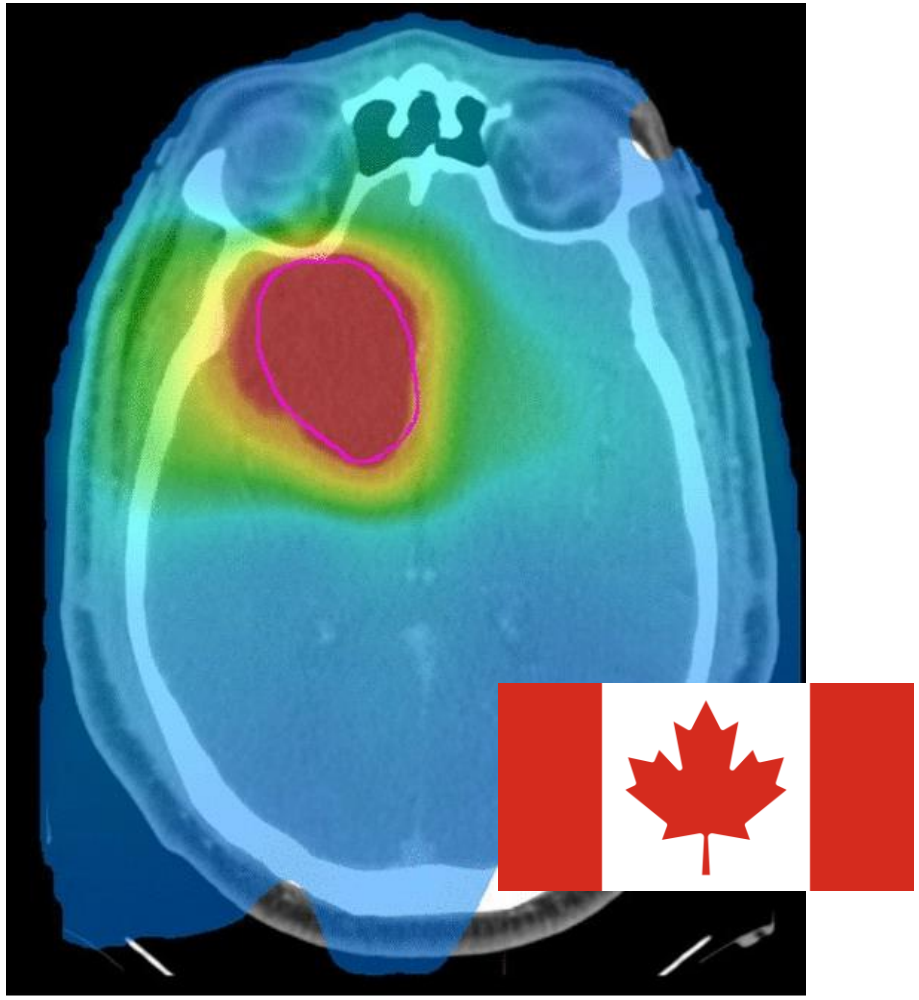


Proton Radiation



Can we do better already?

Photon Radiation



Proton Radiation



Bringing it Together

Aim 1:

What brain imaging markers can we use to understand how the brain develops following radiation?

Aim 2:

How can we create better radiation plans that minimize side effects while not compromising survival outcomes?

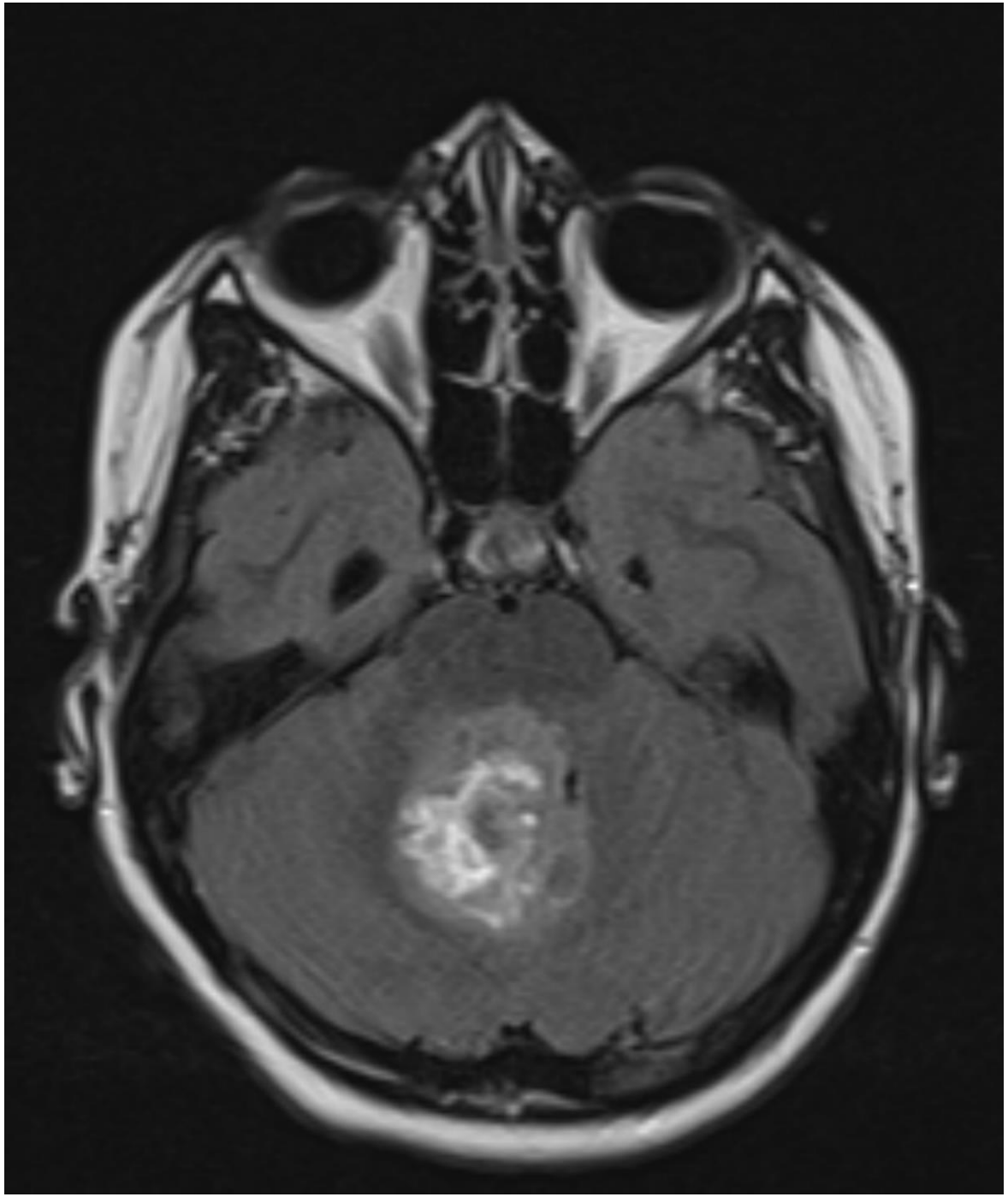
Research Fellowship

Children from Alberta with brain tumors who received radiation

MRI Scan + Neurocognitive Testing

Uncover brain imaging markers that could predict cognitive function

Clinical Trials Implementing Change at the time of RT or post-RT



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- KCC Family and Donors
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Questions



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