

CCLG: The Children & Young People's Cancer Association research:

# Looking for early signs on brain MRIs that can predict whether young people with ependymoma will go on to experience cognitive problems

**Project title:** Early imaging predictors of quality of life in children and young people - a pilot study in paediatric ependymoma (EPIQ - ependymoma)

**Project stage:** Starting soon (February 2026)

**Funded by:** Funded by Children with Cancer UK, CCLG, and CCLG Special Named Fund Little Lady A

**Led by:** Dr Shivaram Avula, Alder Hey Children's Hospital



## About the project

Children and young adults with brain tumours can experience cognitive late effects, such as problems with thinking, attention, language, learning, and memory. Some also have issues with movement, hearing, and vision. This can affect their education, mental health, and employment opportunities later in life. Results from a recent study of nearly 280 brain tumour survivors showed that around 50% faced these problems.

Specialist rehabilitative therapy can help with these problems. However, patients and families report that access to this can vary a lot by geographic location. If we could spot which young people are at risk earlier, services could prioritise those who need help sooner, improving long-term outcomes and quality of life.

Professor Shivaram Avula at Alder Hey Children's Hospital believes that MRI scans could help identify at-risk patients. His expert team will study MRI scans and psychological assessments from the UK participants of a European ependymoma clinical trial. As these patients have all had the same scans and assessments, it is the ideal group to help identify early warning signs of cognitive late effects.

The researchers will analyse the MRI scans, looking at visible differences and tiny changes detectable only through conventional interpretation and advanced computer techniques. This information from the scans will be integrated with the clinical and psychological assessments using machine learning techniques that can recognise patterns linked with future cognitive difficulties. Once early indicators are identified, they will be tested in larger and more diverse groups of children with brain tumours.

This project has been shaped with the input of patients and caregivers affected by childhood brain tumours. This showed that cognition problems are a key issue for children and young adults with brain tumours, and can impact their quality of life. By identifying at risk patients earlier and prioritising them for support, Professor Avula hopes that this project will help improve young people's quality of life and ensure their future.



The Children &  
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