Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) are important tools (“scans”) that care providers use to monitor the status of brain tumours as well as monitor for other changes in the brain due to treatment or other medical issues.

Each type of scan provides different information and depending on the information needed either an MRI or a CT (or both) might be recommended.

CT scans use x-rays to generate images of the skull and brain. CT scans take less time and CT scanners are less confining than MRI scanners – this may be important for ill patients or those who are claustrophobic. For patients with pacemakers or certain types of implants, MRI scans may not be safe and a CT is an excellent alternative. CT scans can also be helpful in detecting bleeding problems like strokes and are also needed for the dose calculations as part of planning radiation treatments. Some tumours, especially non-malignant types, can show up very well on CT imaging and CTs can be very useful for monitoring these types of tumours, especially after the initial diagnosis is made.

MRI scans use a combination of powerful magnetic fields and radio waves to create very detailed images of the inside of the brain. By fine-tuning the type of MRI scan, different aspects of the brain can be studied, like the amount of swelling in the brain or the metabolism of the brain. By using a special dye injected in a vein (“contrast”), tumours in the brain can be seen very well. Sophisticated MRI techniques can measure contrast flow through the brain to estimate blood flow, which can help distinguish tumour changes from treatment changes. For many people being scanned for the first time or who have tumours growing in the substance of the brain (like gliomas), MRIs can provide detailed images to help with the diagnosis and monitoring of tumours and other diseases in the brain. MRI scans do take longer and may not be safe for some people due to the strong magnetic fields. Some people may find MRI scans hard to complete if they are very sick or claustrophobic.

In some individuals a combination of CT and MRI scans is needed to get the required information to accurately diagnosis tumours and diseases in the brain, and to plan and monitor treatment.

The choice of CT or MRI can depend on many factors and the information your care providers require. In the end it is not necessarily a question of which scan is better; rather it is more a question of which scan is best suited to meet the needs of the patient and the provider given the issue to be addressed.