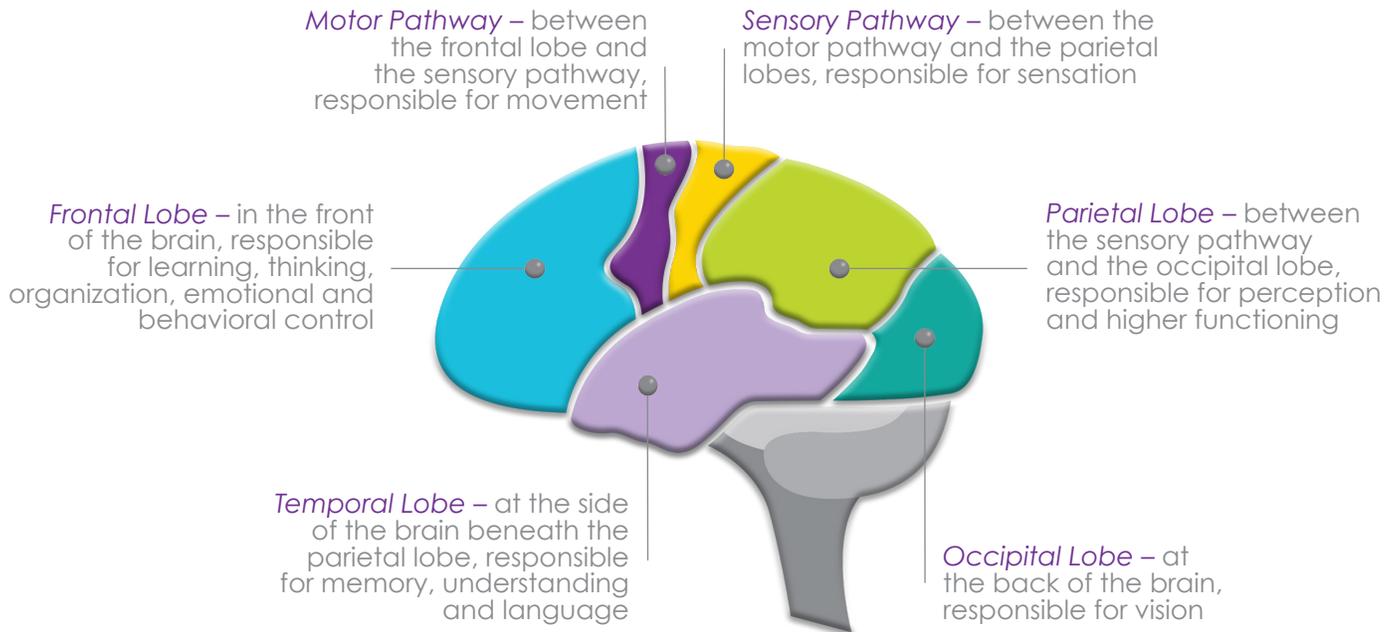


MRI – Magnetic Resonance Imaging



Motor Pathway – between the frontal lobe and the sensory pathway, responsible for movement

Sensory Pathway – between the motor pathway and the parietal lobes, responsible for sensation

Frontal Lobe – in the front of the brain, responsible for learning, thinking, organization, emotional and behavioral control

Parietal Lobe – between the sensory pathway and the occipital lobe, responsible for perception and higher functioning

Temporal Lobe – at the side of the brain beneath the parietal lobe, responsible for memory, understanding and language

Occipital Lobe – at the back of the brain, responsible for vision

Causes of Brain Injury in Babies

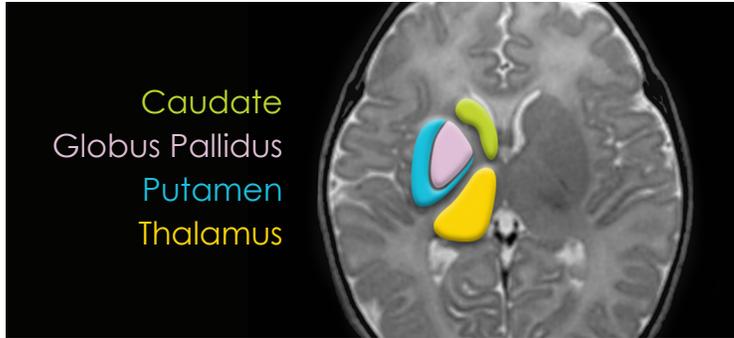
- **Hypoxic Ischemic Encephalopathy (HIE)** – a lack of oxygen (hypoxia), causing brain damage (ischemia) and a reduced level of consciousness (encephalopathy)
- **Intraventricular Hemorrhage** – bleeding in the hollow fluid filled spaces of the brain
- **Extraventricular Hemorrhage** – bleeding into the brain tissue
- **Meningitis** – an infection in the brain from bacteria, causing inflammation
- **Encephalitis** – an infection in the brain caused by a virus, causing inflammation
- **Congenital Brain Malformation** – abnormal development of the brain during pregnancy

Types of Brain Injury

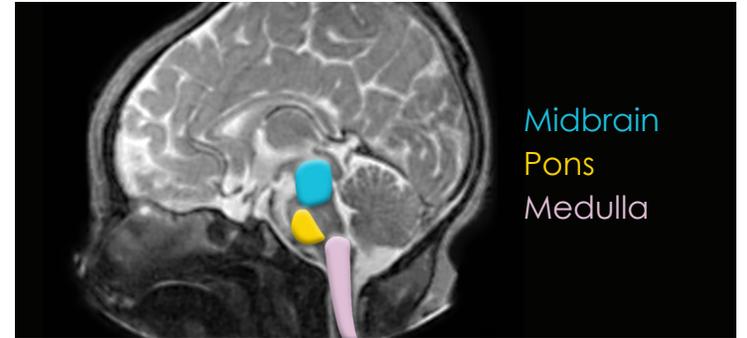
- **Watershed Injury** – brain injury, from a lack of oxygen or blood supply, that occurs in the region of the brain where there is grey and white matter, along the borders of the hemispheres of the brain called the watershed zones
- **Basal Ganglia Injury** – brain injury, from a lack of oxygen or blood supply, that occurs in the deep structures of the brain
- **Subdural Hemorrhage** – bleeding under the skull
- **Subgaleal Hemorrhage** – bleeding outside of the skull but under the skin
- **Hydrocephalus** – too much fluid (cerebral spinal fluid) in the ventricular system of the brain
- **Stroke** – a lack of oxygen or blood supply to an area of the brain due to a blockage from a clot
- **White Matter Injury** – injury to the white matter of the brain, usually in preterm babies
- **Diffusion Restriction** – restriction in the movement of fluid through the brain, diffusion restriction indicates the area of the brain that is damaged
- **Metabolic Injury** – occurs when there are substances (metabolites) in the brain that should not be there, or when there is not enough of a substance that should be there

Parts of the Brain

Basal Ganglia – the deep structures of the brain that receive messages from the motor and sensory pathways and pass those messages along to the brainstem and spinal cord



Brainstem – the regulatory center of the brain, where heart rate, blood pressure and breathing are controlled



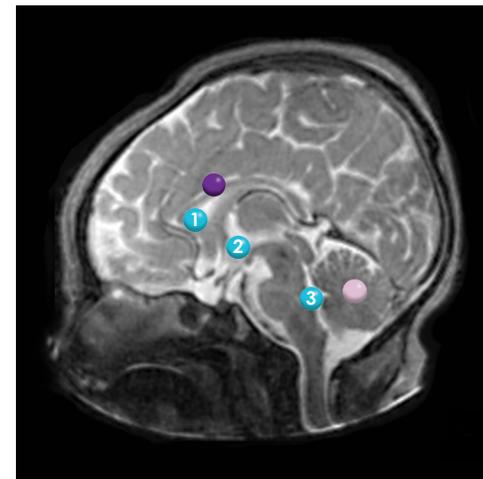
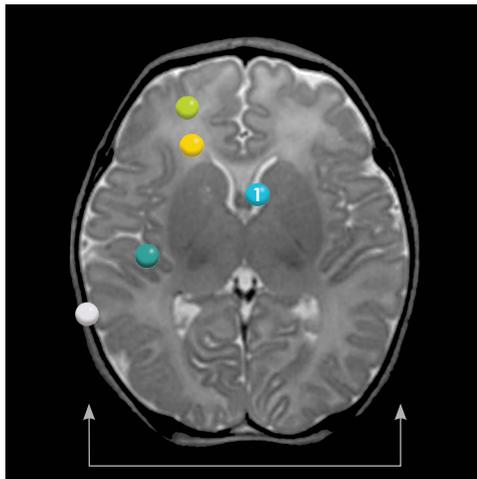
● **White Matter** – the part of the brain tissue that has myelin and helps to pass messages to the grey matter

● **Cortical Ribbon** – the contrast between the grey and white matter of the brain along the edges of the folds of the brain

● **Corpus Callosum** – The connection between the two sides of the brain

● **Grey Matter** – responsible for processing the information involved in muscle control, sensory perception, and memory

● **Sulcation** – the folds of the brain



● **Myelin** – the insulation around the nerves in the brain and spinal cord

● **Cerebellum** – the structure at the back of the brain that is responsible for balance and coordination

Cortex – the cortex is made up of the two sides of the brain, right and left. The sides of the brain are sometimes referred to as the right hemisphere and the left hemisphere.

● **Ventricles** – the fluid filled spaces in the brain where the cerebral spinal fluid is produced and drains into the brainstem

- 1 lateral ventricles
- 2 third ventricle
- 3 fourth ventricle