**Cerebrum: Frontal, Parietal, Temporal, Occipital**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cortex** |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
| Left | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
| Right | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

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| **White Matter** |  |  |  |  |  |  |  |  |  |  |
|  |  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
| Left | Subcort | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Periv | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
| Right | Subcort | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Periv | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

**Deep Grey Nuclei**

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|  |  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
| Left | Cauduate | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Putamen | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Globus Pallidus  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Thalamus | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
| Right | Cauduate | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Putamen | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Globus Pallidus | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Thalamus | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

**Cerebellum**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cortex** |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
| Left | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
| Right | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

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| **White Matter** |  |  |  |  |  |  |  |  |  |  |
|  |  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
| Left | Subcort | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Periv | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
| Right | Subcort | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
|  | Periv | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

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| **Vermis** |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

**Brainstem**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

**White Matter Tracts**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Corpus Callosum** |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Ant. Commissure** |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Fornix**  |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Hippocampal Commissure** |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Central Tegmental Tracts** |  |  |  |  |  |  |  |  |  |
|  | **T2 signal** | **Edema/Swelling** | **DWI** | **Enhancement** | **Atrophy/Volume loss** | **Cystic Enceph/Gliosis** | **Calcs** | **Iron** | **Hemosiderin** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

**Miscellaneous: Dorsal column, Medullary pyramids, Medial lemniscus, Trigeminal tracts, Superior/inferior cerebellar peduncles**

**Malformations of Development**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Corpus Callosum** |  |  |  |  |  |  |
|  | **Partial agenesis** | **Rostrum** | **Splenium** | **Posterior** | **Body Anterior Body** | **Complete agenesis** |
|  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Cerebellum** |  |  |  |
|  | **Vermian Hypoplasia** | **Hemispheric Hypoplasia: Right**  | **Hemispheric Hypoplasia: Left** |
|  | **[ ]**  | **[ ]**  | **[ ]**  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Polymicrogyria** |  |  |  |  |  |  |
|  | **Insula** | **Frontal** | **Parietal** | **Temporal** | **Occipital** | **Cerebellum** |
| Left | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |
| Right | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  | **[ ]**  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Heterotopia** |  |  |  |
|  | **Subependymal** | **Periventricular** | **Subcortical** |
| Left | **[ ]**  | **[ ]**  | **[ ]**  |
| Right | **[ ]**  | **[ ]**  | **[ ]**  |

**Myelination**

|  |  |  |  |
| --- | --- | --- | --- |
| **Demyelination** | **Delayed myelination** | **Hypomyelination** | **Dysmyelination** |
|  | **[ ]**  | **[ ]**  | **[ ]**  |

**Distribution of abnormal myelination:**

**Calculated age based on myelination pattern:**

Recorder Signature: Date:

## General Instructions

Important note: All of the data elements included on this CRF Module are classified as Core (i.e., strongly recommended for all mitochondrial disease clinical studies to collect).

Please see the Data Dictionary for element classifications.

## Specific Instructions

Please see the Data Dictionary for definitions for each of the data elements included in this CRF Module.

* Date – Date/time should be recorded to the level of granularity known (e.g., year, year and month, complete date plus hours and minutes, etc.) and in an unambiguous format acceptable to the study database like DD-MMM-YYYY. When date/time data are prepared for aggregation or sharing, they should be converted to the format specified by [ISO 8601](https://www.iso.org/iso-8601-date-and-time-format.html); YYYY-MM-DD T:hh:mm:ss.