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| <b>Subject: Brain CT (70450, 70460, 70470)</b>  |                                  | <b>Original Effective Date:</b><br>9/19/17 |
| <b>Policy Number:</b> MCR: 601                  | <b>Revision Date(s): 11/6/18</b> |  |
| <b>Review Date: 9/19/17, 12/13/18, 12/10/19</b> |                                  |  |

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**DESCRIPTION OF PROCEDURE/SERVICE/PHARMACEUTICAL**

Brain CT can be used in the evaluation and diagnosis of brain conditions.

**RECOMMENDATIONS**

In most clinical circumstances, Brain MRI is the preferred modality due to its lack of ionizing radiation and greater sensitivity for detecting brain abnormalities. Brain CT can be the preferred study when time is of importance, there are geoaccess problems, or there is concern for subarachnoid bleeding, acute trauma, or bone abnormalities. Brain CT is also appropriate when MRI imaging is contraindicated or cannot be performed.

**Neurological Issues**

Weakness, numbness or tingling, sensory loss, lack of coordination, problems with speech, vision problems, cranial nerve deficits, or changes in mental status when these complaints are suspected to arise from the brain.

- Suspected Stroke or TIA (CT may be preferred in the acute setting)

**Multiple Sclerosis**

***Suspected Multiple Sclerosis***

- For evaluation of patients with symptoms consistent with a possible diagnosis of multiple sclerosis

***Known Multiple Sclerosis***

- Worsening or new symptoms without imaging in the past three months
- Follow up of or surveillance of known disease and no imaging within the last year

- Follow up of disease progression after a change in medications and no imaging in the last three months

### **Movement Disorders**

- New onset of movement disorders
- Suspected Parkinson's disease
- Known Parkinson's disease but with new symptoms

### **Headache** (with any of the following)

- Papilledema
- Awakens you from sleep
- Worst headache of your life (CT may be preferred in the acute setting)
- Sudden change in headache pattern
- New onset of headache over the age of 50
- Recent head injury with headache (CT may be preferred in the acute setting)
- Coital headaches
- Headaches which are clearly positional or worsen with coughing, sneezing
- History of cancer or HIV
- Headache during pregnancy
- Uncontrolled vomiting
- New headache with a first degree family history (sibling, parent or child) of aneurysm
- Abnormal neurological exam findings

### **Cognitive Dysfunction**

- Mini-Mental State Examination (MMSE) testing with a score less than 25 or Montreal Cognitive Assessment (MoCA) testing with a score of less than 26 and have been screened for major depression. (Current recommendations do not specify modality thus CT can be utilized in certain clinical scenarios)
- Acute onset of mental status changes (CT may be preferred in the acute setting)

### **Brain Tumor**

- Follow up after completion of treatment or with new signs/symptoms
- Surveillance according to accepted clinical standards
- Suspected pituitary tumor with abnormal blood work or vision changes
- Screening for metastatic disease with known wide spread disease or for certain malignancies with a high association of metastatic brain disease.

### **Seizure**

- New onset
- Chronic, with a change in character or unresponsive to therapy

### **Congenital Conditions**

- Known or suspected neurocutaneous disease (conditions such as neurofibromatosis, tuberous sclerosis)
- Evaluation of known or suspected congenital brain abnormalities
- Macrocephaly in a child greater than six months of age. Should have ultrasound as initial study if less than six months of age.
- Microcephaly
- Suspected craniosynostosis (CT is preferred)

- Plagiocephaly where bony detail is needed (CT is preferred)
- Follow up of a ventricular shunt (CT is acceptable for follow up evaluations)
- Known or suspected Arnold Chiari malformation
- Developmental delay (The diagnosis of Autism and its spectrum of diseases is made clinically based on a careful history, clinical examination, and observation of behavior. Routine imaging is not recommended unless this diagnosis remains in question or there is concern for underlying pathology based on other factors.)

### **Head Trauma**

*(CT is acceptable if there is concern for fractures or bleeding or in the acute setting)*

- Headaches
- Vomiting
- Mental status changes
- Seizures
- Abnormal neurological exam findings

### **Infection/Inflammatory disease**

- Suspected meningitis or encephalitis
- Underlying medical condition associated with inflammatory conditions of the brain and symptoms suggestive of brain involvement

### **Pre/Post Procedural**

- Pre-operative evaluation (CT may be preferred depending on the type of procedure)
- Post-operative for routine recommended follow up or for potential post-operative complications. (CT may be preferred depending on the type of procedure)
- A repeat study may be needed to help evaluate a patient's progress after treatment procedure intervention or surgery. The reason for the repeat study and that it will affect care must be clear.

### **Other**

- Follow up of known hemorrhage or hematoma (CT is acceptable)  
Persistent vertigo felt to be of central origin

### **Brain/Cervical Spine CT combination**

- For evaluation of known Multiple Sclerosis
- Follow up of Arnold Chiari malformation, syrinx, or syringomyelia

## **ADDITIONAL CRITICAL INFORMATION**

- The above medical necessity recommendations are used to determine the best diagnostic study based on a patient's specific clinical circumstances. The recommendations were developed using evidence based studies and current accepted clinical practices. Medical necessity will be determined using a combination of these recommendations as well as the patient's individual clinical or social circumstances.
- Tests that will not change treatment plans should not be recommended.
- Same or similar tests recently completed need a specific reason for repeat imaging.

REFERENCES USED FOR DETERMINATIONS

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| CPT   | Description  |
|-------|--|
| 70450 | CT (Computed Tomography) Head/Brain without contrast)          |
| 70460 | CT (Computed Tomography) Head/Brain with contrast)             |
| 70470 | CT (Computed Tomography) Head/Brain without and with contrast) |