

Subject: Brain SPECT, (78607)		Original Effective Date: 10/25/2018
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DESCRIPTION OF PROCEDURE/SERVICE/PHARMACEUTICAL

Brain SPECT (Single-photon emission computed tomography) is a nuclear medicine procedure that can quantify blood flow (perfusion) to the brain and brain metabolic activity. Different radiopharmaceuticals that cross the blood brain barrier can be used for brain SPECT, depending on the diagnostic information being sought.

To distinguish Alzheimer disease (AD) from frontotemporal or other forms of dementia, SPECT is performed using the isotopes Technetium 99m HMPAO (hexamethyl propylene amine oxime) or Technetium 99m ECD (ethyl cysteinate dimer). These isotopes can also be used for a number of other indications including localizing epileptic foci, diagnosing encephalitis, assessing vascular spasm following subarachnoid hemorrhage, detecting and evaluating cerebrovascular disease, predicting the prognosis of patients with cerebrovascular accidents and corroborating the clinical impression of brain death. Although SPECT is less expensive and more readily accessible than PET, brain PET provides better resolution and more specific functional information than Technetium SPECT scans and PET is thus the preferred exam.

Parkinsonism is a progressive, neuro-degenerative syndrome, caused by neuronal loss in the substantia nigra and loss of dopaminergic terminals in the basal ganglia of the brain. The substantia nigra contains the dopamine transporter (DaT) protein that is responsible for the uptake of dopamine. Dopamine transporter scan (DaT SPECT) is performed with the isotope iodine-123 ioflupane and measures DaT sites in the brain, thus assessing nigrostriatal integrity

and evaluating for a dopaminergic deficit. Prototypical Parkinson Disease (PD) is characterized by tremor, bradykinesia and rigidity with a dopaminergic deficit. However, other conditions, including essential tremor (ET), drug induced Parkinsonism, normal pressure hydrocephalus, vascular Parkinsonism and psychogenic (functional) Parkinsonism, may mimic some of the clinical findings of classical PD, but without nigrostriatal degeneration (without a dopaminergic deficit).

APPROVAL SUPPORT

This policy addresses single photon emission computed tomography (SPECT) of the brain only.

- Post treatment evaluation to determine residual tumor versus radiation necrosis
- Pre-surgical evaluation for patients with refractory epilepsy

DaTscan Brain SPECT

- Patients with tremor that is not clearly differentiated into either essential tremor or Parkinsonian tremor and is not responsive to dopaminergic replacement therapy

ADDITIONAL 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.

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CPT	Description
78607	Brain SPECT