Background

Positron emission tomography (PET) is a three-dimensional (3D) nuclear imaging technique that measures the level of physiologic and biochemical activity or other organic function in an organ or tissue by reflecting the distribution of a radiotracer that has been administered to the patient. PET has been proposed as a method for diagnosing and predicting Alzheimer’s disease (AD) and for monitoring and predicting response to treatment for AD.

The Centers for Medicare & Medicaid Services (CMS) (2013) has determined that the evidence is insufficient to
conclude that the use of positron emission tomography (PET) amyloid-beta (Aβ) imaging is reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member for Medicare beneficiaries with dementia or neurodegenerative disease, and thus PET Aβ imaging is not covered under §1862(a)(1)(A) of the Social Security Act (“the Act”).²

However, there is sufficient evidence that the use of PET Aβ imaging is promising in two scenarios: (1) to exclude Alzheimer’s disease (AD) in narrowly defined and clinically difficult differential diagnoses, such as AD versus frontotemporal dementia (FTD); and (2) to enrich clinical trials seeking better treatments or prevention strategies for AD, by allowing for selection of patients on the basis of biological as well as clinical and epidemiological factors.³

**POSITION STATEMENT**

**Applicable To:**

- Medicaid – Hawaii
- Medicare – Easy Choice Health Plan, Hawaii

**NOTE:** For other markets, please route request to the authorized vendor.

PET Scans for Dementia and Neurodegenerative Disease are considered medically necessary when one of the two (2) criteria below are met.

1. **Diagnosis of Frontotemporal Dementia (FTD)** (Source: CMS, 2013)

   Coverage is limited to one (1) PET Aβ scan per member through coverage with evidence development (CED), under §1862(a)(1)(E) of the Social Security Act, when one of the criteria are met:

   a. To exclude Alzheimer’s disease (AD) in narrowly defined and clinically difficult differential diagnoses, such as AD versus frontotemporal dementia (FTD):

      - Member has a recent diagnosis of dementia and documented cognitive decline of at least 6 months; **AND,**
      - Member meets diagnostic criteria for both FTD and AD; **AND,**
      - Member has been evaluated for specific alternate neurodegenerative diseases or other causative factors, but the cause of the clinical symptoms remain uncertain.

   The following additional conditions must be met before a PET scan will be covered:

      - Member’s onset, clinical presentation, or course of cognitive impairment is such that FTD is suspected as an alternative neurodegenerative cause of the cognitive decline. Specifically, symptoms such as social disinhibition, awkwardness, difficulties with language, or loss of executive function are more prominent early in the course of FTD than the memory loss typical of AD; **AND,**
      - Member has had a comprehensive clinical evaluation (as defined by the American Academy of Neurology AAN) encompassing a medical history from the member and a well-acquainted informant (including assessment of activities of daily living), physical and mental status examination (including formal documentation of cognitive decline occurring over at least 6 months) aided by cognitive scales or neuropsychological testing, laboratory tests, and structural imaging such as magnetic resonance imaging (MRI) or computed tomography (CT); **AND,**
      - The evaluation of the member has been conducted by a physician experienced in the diagnosis and assessment of dementia; **AND,**
      - The evaluation of the member did not clearly determine a specific neurodegenerative disease or other cause for the clinical symptoms, and information available through PET is reasonably expected to help clarify the diagnosis between FTD and AD and help guide future treatment; **AND,**
      - The PET scan is performed in a facility that has all the accreditation necessary to operate nuclear medicine equipment. The reading of the scan should be done by an expert in nuclear medicine, radiology, neurology, or psychiatry, with experience interpreting such scans in the presence of
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dementia; AND,

• A brain single photon emission computed tomography (SPECT) or PET scan has not been obtained for the same indication. (The indication can be considered to be different in patients who exhibit important changes in scope or severity of cognitive decline, and meet all other qualifying criteria listed above and below (including the judgment that the likely diagnosis remains uncertain). The results of a prior SPECT or PET scan must have been inconclusive or, in the case of SPECT, difficult to interpret due to immature or inadequate technology. In these instances, an PET scan may be covered after one year has passed from the time the first SPECT or PET scan was performed.); AND,

• The referring and billing provider(s) have documented the appropriate evaluation of the Medicare beneficiary. Providers should establish the medical necessity of an PET scan by ensuring that ALL of the following information has been collected and is maintained in the beneficiary medical record:
  a. Date of onset of symptoms;
  b. Diagnosis of clinical syndrome (normal aging; mild cognitive impairment (MCI); mild, moderate or severe dementia);
  c. Mini mental status exam (MMSE) or similar test score;
  d. Presumptive cause (possible, probable, uncertain AD);
  e. Any neuropsychological testing performed;
  f. Results of any structural imaging (MRI or CT) performed;
  g. Relevant laboratory tests (B12, thyroid hormone); AND,
  h. Number and name of prescribed medications.

OR,

b. To enrich clinical trials seeking better treatments or prevention strategies for AD, by allowing for selection of patients on the basis of biological as well as clinical and epidemiological factors. For clinical trials, the following must be met:

• Clinical study objectives must be to: (1) develop better treatments or prevention strategies for AD, or, as a strategy to identify subpopulations at risk for developing AD, or (2) resolve clinically difficult differential diagnoses (e.g., frontotemporal dementia (FTD) versus AD) where the use of PET Aβ imaging appears to improve health outcomes. These may include short term outcomes related to changes in management as well as longer term dementia outcomes.

• Clinical studies must be approved by CMS, involve subjects from appropriate populations, and be comparative and longitudinal. Where appropriate, studies should be prospective, randomized, and use postmortem diagnosis as the endpoint. Radiopharmaceuticals used in the PET Aβ scans must be FDA approved. Approved studies must address one or more aspects of the following questions.

2. PET scans are considered medically necessary in members with mild cognitive impairment (MCI) or early dementia in the following circumstances:

• The scan is performed in the context of an approved clinical trial that contains member safeguards and protections to ensure proper administration, use and evaluation of the PET scan; AND,
The clinical trial compares members who do and do not receive a PET scan and has as its goal to monitor, evaluate, and improve clinical outcomes.

In addition, ALL of the following criteria must be met:

- Written protocol on file; AND,
- Institutional Review Board (IRB) review and approval; AND,
- Scientific review and approval by two or more qualified individuals who are not part of the research team; AND,
- Certification that investigators have not been disqualified.

3) All other uses of PET scans for members with presumptive diagnosis of dementia-causing neurodegenerative disease (e.g., possible or probable AD, clinically typical FTD, dementia of Lewy bodies, or Creutzfeld-Jacob disease) for which CMS has not specifically indicated coverage continue to be considered not medically necessary and non-covered.

**CODING**

**Covered CPT® Codes**

- 78608 Brain imaging, positron emission tomography (PET); metabolic evaluation
- 78811 Positron emission tomography (PET) imaging; limited area (eg, chest, head/neck)
- 78814 Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; limited area (eg, chest, head/neck)

**Covered Modifiers**

- 26 Professional component
- TC Technical component

*Note: Per HI Medicaid 3 codes are required for PET: one procedure code representing one of the services listed above followed by modifier 26 (professional component), one procedure code representing one of the services listed above followed by modifier – TC (technical component), and the code assigned to the radiopharmaceutical agent, fluorodeoxyglucose (FDG).*

- Q0 Investigational clinical service provided in a clinical research study that is in an approved clinical research study
- Q1 Routine clinical service provided in a clinical research study that is in an approved clinical research study

*Note: When PET Scans are performed in conjunction with a CMS-approved clinical trial or for an indication reimbursed under “Coverage with Evidence Development” (CED), providers must append a modifier to the appropriate CPT code.*

**Covered HCPCS Codes**

- A9552 Fluorodeoxyglucose (F-18 FDG), diagnostic, per study dose up to 45 millicuries
- A9599 Radiopharmaceutical, diagnostic, for beta-amyloid positron emission tomography (PET) imaging, per study dose, not otherwise specified

**Covered ICD-10-PCS Codes**

- C030KZ Positron Emission Tomographic (PET) imaging of brain using Flourine 18 (F-18)

**Covered ICD-10-CM Diagnosis Codes**

- F01.50 – F01.51 Vascular Dementia
- F02.80 - F02.81 Dementia in other diseases classified elsewhere
- F03.90 - F03.91 Unspecified dementia
- F06.8 Other specified mental disorders due to known physiological condition
- G30.0 - G30.9 Alzheimer's disease
- G31.01 - G31.09 Frontotemporal dementia
- G31.1 Senile degeneration of brain, not elsewhere classified
- G31.81-G31.89 Other specified degenerative diseases of nervous system
- G31.9 Degenerative disease of nervous system, unspecified
- R41.1 Anterograde amnesia
- R41.2 Retrograde amnesia
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R41.3 Other amnesia
R41.81 Age related cognitive decline; senility
R41.82 Altered mental status, unspecified
R41.9 Unspecified symptoms and signs involving cognitive functions and awareness
Z00.6 Encounter for examination for normal comparison and control in clinical research program

Coding information is provided for informational purposes only. The inclusion or omission of a CPT, HCPCS, or ICD-10 code does not imply member coverage or provider reimbursement. Consult the member's benefits that are in place at time of service to determine coverage (or non-coverage) as well as applicable federal / state laws.

REFERENCES

MEDICAL POLICY COMMITTEE HISTORY AND REVISIONS

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
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<tr>
<td>12/7/2017, 1/12/2017, 10/6/2016, 10/1/2015, 10/2/2014</td>
<td>Approved by MPC. No changes.</td>
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<tr>
<td>8/9/2013</td>
<td>Reinstated for markets where CareCore is not a vendor.</td>
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<tr>
<td>5/3/2012</td>
<td>Retired by MPC; covered by CareCore criteria.</td>
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<tr>
<td>2/2/2012</td>
<td>Approved by MPC. Added background information from Hayes; added new Hayes reference from 2011.</td>
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<tr>
<td>12/1/2011</td>
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