Molina Clinical Policy
Brain PET
Policy No. 655

Last Approval: 08/12/2026
Next Review Due By: August 2027

DISCLAIMER

This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. Policies are not a supplementation or recommendation for treatment; Providers are solely responsible for the diagnosis, treatment, and clinical recommendations for the Member. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (e.g., will be paid for by Molina) for a particular Member. The Member's benefit plan determines coverage – each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their Providers will need to consult the Member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a Member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid Members. CMS's Coverage Database can be found on the CMS website. The coverage directive(s) and criteria from an existing National Coverage Determination (NCD) or Local Coverage Determination (LCD) will supersede the contents of this MCP and provide the directive for all Medicare members. References included were accurate at the time of policy approval and publication.

OVERVIEW

Positron emission tomography (PET) scans are based on the principal of nuclear technology. Most brain PET scans are considered metabolic PET which are performed using the radiotracer FDG (Flourine-18-deoxyglucose) – a lab created molecule similar to glucose. Glucose is utilized for cellular metabolism. Using a radiolabeled glucose molecule (FDG), cells with higher metabolism will have increased uptake of the FDG molecule compared to surrounding tissue. Many tumor cells have increased metabolism and show increased FDG uptake. Other processes with increased rates of metabolism such as infection, inflammation, and sites of active tissue repair (surgical or traumatic wounds, fractures, chemotherapy) also have higher uptake of FDG. Conversely, all cancers are not rapidly growing and in addition some types of tumors do not have high concentrations of the transport molecule needed for uptake of FDG; these would show low FDG avidity on PET.

Some tissues have a higher physiologic metabolism when compared to others. Increased FDG uptake is normally seen in brain tissue, laryngeal muscles, salivary glands, thymic tissue, breast, heart, liver, uterus, testes, brown fat cells, and bone marrow. Colonic activity is known to be extremely variable in location and intensity and can make interpretation difficult. Uptake can be falsely low in small lesions, generally less than 1cm. Finally, FDG is excreted from the body in the urine. This means there is expected increased uptake in the renal collecting system and bladder, making detecting local tumors or tumors close to this system very difficult.

Another type of Brain PET is an Amyloid PET scan. This differs from a PET scan using radiolabeled glucose (FDG) molecules. An Amyloid PET scan uses radiotracers (Amyvid, Neuraceq, Vizamyl) which bind specifically to Amyloid deposits in the brain. This highlights the difference between an FDG PET and an Amyloid PET scan. An FDG PET scan is a functional scan based on specific tissue metabolic activity while an Amyloid scan binds to existing amyloid plaques present in brain tissue, which is critical for the diagnosis of Alzheimer disease.

Attenuation is a term used to describe the loss of detectable photons. The reasons for increased or decreased detection of the photons are extremely complicated but can be due to many factors such as different tissue densities, body surface, and body habitus. Today's scanners predominantly use computed tomography (CT) to address the issue of attenuation. All PET scans employ some type of attenuation correction. A CT is routinely performed to produce a map of different tissue densities within the body which can be used to correct for differences in photon absorption.

COVERAGE POLICY

Brain Positron emission tomography (PET) scans may be **considered medically necessary** for ANY of the following indications:

1. For **Brain Tumor** when ONE of the following criteria are met:
    a. Inconclusive imaging findings and PET will be used to clarify the need for biopsy or change in therapy
    b. Post treatment evaluation to determine residual tumor versus radiation necrosis

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2. For **Seizures** when the brain PET is utilized for pre-surgical evaluation and planning for refractory seizures.

3. For **Dementia** when ALL the following criteria are met:
    a. PET scan is intended for at least ONE of the following
        i. Aid in early Alzheimer's detection
        ii. Differentiate between dementia types (e.g., Alzheimer's, Lewy body disease, frontotemporal lobe degeneration)
        iii. Aid in therapy planning for Member under consideration for anti-amyloid therapy
        iv. Amyloid PET monitoring for Members actively receiving anti-amyloid medication for which repeat amyloid PET is part of FDA labeling (e.g., every 6 months for up to 1.5 years after starting treatment, to decide whether to stop treatment)
    b. Documented diagnosis of objective mild cognitive impairment (MCI) based on at least ONE of the following:
        i. Objective impairment on a standardized memory assessment test (e.g., Mini Mental State Examination (MMSE) < 26, Saint Louis University Mental Status (SLUMS) < 27, Montreal Cognitive Assessment (MoCA) score < 26)
        ii. Mild cognitive impairment on neuropsychological testing not explained by age or education
    c. Brain MRI has been completed and is inconclusive
    Note: Brain CT is acceptable to fill this criteria when MRI is contraindicated or cannot be performed
    d. Cognitive impairment persists despite lab evaluation including thyroid function tests, CBC, CMP, liver function tests, and B12; and treatment, if abnormal
    e. Medication side effects and other medical etiologies (e.g., vascular, trauma, inflammatory) have been excluded

All other indications for Brain PET are **not considered medically necessary**.

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 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.

DOCUMENTATION REQUIREMENTS: Molina Healthcare reserves the right to require that additional documentation be made available as part of its coverage determination; quality improvement; and fraud; waste and abuse prevention processes. Documentation required may include, but is not limited to, patient records, test results and credentials of the provider ordering or performing a drug or service. Molina Healthcare may deny reimbursement or take additional appropriate action if the documentation provided does not support the initial determination that the drugs or services were medically necessary, not investigational, or experimental, and otherwise within the scope of benefits afforded to the member, and/or the documentation demonstrates a pattern of billing or other practice that is inappropriate or excessive.

CODING & BILLING INFORMATION

CPT (Current Procedural Terminology)

Code	Description
78608	Brain imaging, positron emission tomography (PET); metabolic evaluation
78609	Brain imaging, positron emission tomography (PET); perfusion evaluation
78811	Positron emission tomography (PET) imaging; limited area (e.g., chest, head/neck)
78814	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; limited area (e.g., chest, head/neck)

CODING DISCLAIMER: Codes listed in this policy are for reference purposes only and may not be all-inclusive. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement. Listing of a service or device code in this policy does not guarantee coverage. Coverage is determined by the benefit document. Molina adheres to Current Procedural Terminology (CPT®), a registered trademark of the American Medical Association (AMA). All CPT codes and descriptions are copyrighted by the AMA; this information is included for informational purposes only. Providers and facilities are expected to utilize industry standard coding practices for all submissions. When improper billing and coding is not followed, Molina has the right to reject/deny the claim and recover claim payment(s). Due to changing industry practices, Molina reserves the right to revise this policy as needed.

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APPROVAL HISTORY

08/12/2026	Policy revised. Expanded dementia indications to include “Aid in early Alzheimer's detection” and “Differentiate between dementia types”. Added criteria to rule out other etiologies of cognitive impairment.
08/13/2025	Policy reviewed. No changes to coverage criteria. Removed note referencing CMS coverage.
08/14/2024	Policy reviewed. Removed select documentation requirements for Alzheimer’s Disease including cerebrospinal fluid testing or contraindication, treatment with two or more Alzheimer’s drug therapies, and absence of a number of contraindications. IRO Peer Review on July 24, 2024, by a practicing physician board-certified in Radiology.
08/09/2023	Policy reviewed, criteria updated to include any monoclonal antibodies directed against amyloid beta.
08/10/2022	Policy reviewed, no changes to coverage criteria. Updated Reference section.
08/11/2021	Policy reviewed, updated criteria with reference to CMS guidelines for FDG PET for Dementia and Neurodegenerative Diseases.
12/09/2020	Policy reviewed, no changes to coverage criteria.
12/10/2019	Policy reviewed, no changes to coverage criteria.
12/13/2017	New policy.

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