National Imaging Associates, Inc.	
Clinical guidelines **BRAIN PET SCAN**	**Original Date: July 1999**
CPT Codes: 78608, 78609	**Last Revised Date: ~~May 2022~~ May 2023**
Guideline Number: NIA_CG_071	**Implementation Date: January 2024~~3~~**

GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

INDICATIONS FOR BRAIN PET SCAN

Known brain tumor or cancer[1, 2] when brain MRI is indeterminant or insufficient to:

- ~~To~~ Dd~~i~~fferentiate radiation necrosis or post-treatment change from residual/recurrent tumor ~~when brain MRI[‡1] is inconclusive~~
- D~~To d~~ifferentiate low from high grade glioma ~~when brain MRI[‡] is inconclusive[2,3]~~
- E~~For e~~valuation of primary brain lymphoma ~~when brain MRI[‡] is inconclusive[4]~~
- E~~For e~~valuation of meningiomas ~~when brain~~ ~~MRI[‡] is inconclusive[4,5]~~(~~in addition to~~ FDG or~~,~~ SSTR analogs ~~,~~(such as GA-68 Dotatate ~~and Dototoc) are now FDA approved for use in meningioma imaging~~)
- To guide intervention/biopsy

To determine operability of refractory seizures[3-5]

Post-treatment/procedural evaluation

- A follow-up study may be needed to help evaluate a patient's progress after treatment, procedure, intervention, or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed.

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Mild Cognitive Impairment or Dementia[6]

- For the detection of early Alzheimer's disease†;
- For the differentiation between Alzheimer's disease, dementia with Lewy body disease (DLB) and frontotemporal lobar degeneration (FTD)†; or
- To assess for the presence of beta amyloid plaque in Alzheimer's disease when being considered for treatments that target beta-amyloid plaque (such as Aduhelm ~~or Lecanemab~~)†
- ~~To assess for the presence of beta amyloid plaque in Alzheimer's disease when being considered for Aduhelm treatment†~~

†Note: **AFTER** an initial insufficient evaluation with a Brain MRI‡ and the following 2 criteria have been met[7, 8]:

- Objective cognitive impairment[9, 10] has been demonstrated by:
  - Either by Mini Mental Status Evaluation (MMSE) or Montreal Cognitive Assessment (MoCA) less than 26[11]
  - **OR** by Neuropsychological testing showing at least mild cognitive impairment[12, 13]
- Potential treatable causes have been assessed and addressed,[9] such as:
  - Metabolic causes, such as thyroid or vitamin deficiency, anemia, or toxic metabolic encephalopathy
  - Medication side effects[14]
  - Medical causes, such as vascular or traumatic or inflammatory

‡**Note:** Brain CT is acceptable if brain MRI is contraindicated. However, Brain CT cannot be substituted for MRI when Brain PET is requested for evaluation of amyloid plaque because MRI is a prerequisite to beta-amyloid targeted ~~Aduhelm~~ treatment.

Other Indications

Further evaluation of indeterminate findings on prior imaging (unless follow up is otherwise specified within the guideline):

- For initial evaluation of an inconclusive finding on a prior imaging report that requires further clarification
- One follow-up exam of a prior indeterminate MR/CT finding to ensure no suspicious interval change has occurred. (No further surveillance unless specified as highly suspicious or change was found on last follow-up exam.)

BACKGROUND

Positron Emission Tomography (PET) scanning can be used to assesses brain metabolism and perfusion. Uses include identifying epileptic foci prior to surgery, differentiation of residual tumor versus scar, helping differentiate inconclusive findings on Brain MRI and identifying causes of cognitive decline.[15]

POLICY HISTORY

Date	Summary
May 2023	• Added that Dotatate is now FDA approved for meningioma imaging
May 2022	• Updated references and background • Removed FDG from Indications title • Added meningioma when MR is inconclusive
July 2021	• Added information on detection of amyloid for use with Aduhelm
May 2020	• Added CNS lymphoma and glioma after inconclusive imaging • For the detection of early Alzheimer's disease or the differentiation between Alzheimer's disease, Dementia with Lewy body disease (DLB) versus Frontotemporal lobar degeneration (FTD) after appropriate clinical work-up and initial insufficient evaluation with a brain MRI • Changed post-surgery to post treatment • Removed longitudinal assessment of memory decline • Added references
June 2019	• Changed indications title to specify: 'using FDG (fluourodeoxyglucose)' • For indication: Mild Cognitive Impairment or Dementia, added '*Brain MRI to rule out structural causes or Brain CT if MRI is contraindicated'* • Added information to background section

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ADDITIONAL RESOURCES

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POLICY HISTORY

Date	Summary
May 2023	• Added that Dotatate is now FDA approved for meningioma imaging • General Information moved to beginning of guideline with added statement on clinical indications not addressed in this guideline • Added statement regarding further evaluation of indeterminate findings on prior imaging • Additional resources removed
May 2022	• Updated references and background • Removed FDG from Indications title • Added meningioma when MR is inconclusive

~~fluorodeoxyglucose~~

Reviewed / Approved by NIA Clinical Guideline Committee

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