



FEP Medical Policy Manual

FEP 6.01.67 Oncologic Applications of Positron Emission Tomography Scanning (Brain, Melanoma, Unknown Primary)

Annual Effective Policy Date: April 1, 2026

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Related Policies:

- 6.01.06 - Miscellaneous (Noncardiac, Nononcologic) Applications of Fluorine 18 Fluorodeoxyglucose Positron Emission Tomography
- 6.01.20 - Cardiac Applications of Positron Emission Tomography Scanning
- 6.01.51 - Interim Positron Emission Tomography Scanning in Oncology to Detect Early Response During Treatment
- 6.01.62 - Oncologic Applications of Positron Emission Tomography Scanning (Breast and Gynecologic)
- 6.01.64 - Oncologic Applications of Positron Emission Tomography Scanning (Hematologic)
- 6.01.65 - Oncologic Applications of Positron Emission Tomography Scanning (Lung)
- 6.01.66 - Oncologic Applications of Positron Emission Tomography Scanning (Thyroid, Neuroendocrine, Head and Neck)

Oncologic Applications of Positron Emission Tomography Scanning (Brain, Melanoma, Unknown Primary)

Description

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Positron emission tomography (PET) is a nuclear imaging technique that uses positron-emitting tracers attached to molecules like glucose or water to create 3D images of metabolic activity. In cancer care, tracer choice depends on tumor type and cancer stage under evaluation.

OBJECTIVE

The objective of this evidence review is to examine whether the use of positron emission tomography for the diagnosis, staging and restaging, and/or surveillance of various carcinomas improves the net health outcome in individuals with brain cancer, melanoma, cancer of unknown primary, and single-site metastatic disease.

POLICY STATEMENT

Brain Cancer

FDG-PET or FDG-PET/CT (positron emission tomography (PET)) scanning may be considered **medically necessary** in the staging or restaging of brain cancer.

Melanoma

FDG-PET or FDG-PET/CT scanning may be considered **medically necessary** as a technique for assessing extranodal spread of malignant melanoma at initial staging or at restaging during follow-up treatment for advanced disease (stage III or IV).

FDG-PET or FDG-PET/CT scanning is considered **investigational** in managing stage 0, I, or II melanoma.

FDG-PET or FDG-PET/CT scanning is considered **investigational** as a technique to detect regional lymph node metastases in individuals with clinically localized melanoma who are candidates to undergo sentinel node biopsy.

Cancer of Unknown Primary

FDG-PET or FDG-PET/CT scanning may be considered **medically necessary** in individuals with a cancer of unknown primary who meet ALL of the following criteria:

- In individuals with a single site of disease outside the cervical lymph nodes, and
- Individual is considering local or regional treatment for a single site of metastatic disease, and
- After a negative workup for an occult primary tumor, and
- PET scan will be used to rule out or detect additional sites of disease that would eliminate the rationale for local or regional treatment.

FDG-PET or FDG-PET/CT scanning is considered **investigational** for other indications in individuals with a cancer of unknown primary, including, but not limited to the following:

- As part of the initial workup of a cancer of unknown primary, and
- As part of the workup of individuals with multiple sites of disease.

Cancer Surveillance

FDG-PET or FDG-PET/CT scanning is considered **investigational** when used as a surveillance tool for individuals with cancer or with a history of cancer. A scan is considered surveillance if performed more than 6 months after completion of cancer therapy (12 months for lymphoma) in individuals without objective signs or symptoms suggestive of cancer recurrence (see Policy Guidelines section).

POLICY GUIDELINES

Use of PET scanning for surveillance as described in the policy statement and policy rationale refers to the use of PET to detect disease in asymptomatic individuals at various intervals. This is not the same as the use of PET for detecting recurrent disease in symptomatic individuals; these applications of PET are considered within tumor-specific categories in the policy statements.

BENEFIT APPLICATION

Experimental or investigational procedures, treatments, drugs, or devices are not covered (See General Exclusion Section of brochure).

FDA REGULATORY STATUS

In 2000, Fluorine 18 fluorodeoxyglucose (FDG) was approved as a radiotracer for use in positron emission tomography (PET) imaging. It is used for evaluating, staging, and monitoring treatment for cancers such as non-small cell lung cancer, lymphomas, colorectal carcinoma, malignant melanoma, esophageal carcinoma, head and neck cancer, thyroid carcinoma, and breast cancer. As a glucose analogue it accumulates in most tumors in a greater amount than it does in normal tissue.

RATIONALE

Summary of Evidence

Brain Tumors

For individuals who have diagnosed brain tumors and in need of staging or restaging information or who have suspected brain tumor who receive FDG-PET, ¹⁸F fluoro-ethyl-tyrosine PET, or carbon 11 (¹¹C) methionine PET, the evidence includes several systematic reviews and meta-analyses. Relevant outcome is test validity. Pooled analyses have shown that PET or PET/CT can be effective in distinguishing brain tumors from normal tissue. Indirect comparisons between the radiotracers ¹¹C-methionine and FDG have shown that ¹¹C-methionine may have better diagnostic performance. Clinical guidelines include PET to inform management decisions that may offer clinical benefit. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who are asymptomatic after completing brain cancer treatment who receive FDG-PET, ¹⁸F fluoro-ethyl-tyrosine-PET, or ¹¹C-methionine PET, the evidence includes systematic reviews and meta-analyses. Relevant outcome is test validity. Pooled analyses did not support the use of PET for surveillance of brain cancer following treatment. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Melanoma

For individuals who have suspected or diagnosed stage I or II melanoma and in need of staging or restaging information who receive FDG-PET or FDG-PET/CT, the evidence includes a meta-analysis and systematic review. Relevant outcome is test validity. Evidence has shown PET and PET/CT are not as beneficial as the reference standard (sentinel node biopsy) for assessing regional lymph nodes. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have diagnosed advanced melanoma (stage III or IV) and in need of staging or restaging information who receive FDG-PET or FDG-PET/CT, the evidence includes a meta-analysis and systematic review. Relevant outcome is test validity. Evidence has shown PET and PET/CT can detect systemic metastases in individuals with advanced melanoma. Clinical guidelines include PET/CT for staging or restaging stage III or IV disease and for surveillance. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who are asymptomatic after completing melanoma treatment who receive FDG-PET or FDG-PET/CT, the evidence includes retrospective and observational studies. Relevant outcome is test validity. At the discretion of the physician, imaging surveillance can be considered every 3 to 12 months. Because recurrences usually occur within 3 years, screening asymptomatic individuals beyond 3 to 5 years is not recommended. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

Cancer of Unknown Primary and Single-Site Metastatic Disease

For individuals with cancer of unknown primary and single-site metastatic disease who receive FDG-PET or FDG-PET/CT, the evidence includes a meta-analysis and systematic review. Relevant outcome is test validity. Studies reviewed in the assessment showed that PET identified previously undetected metastases confirmed by biopsy. Additionally, PET can contribute to the management of individuals with cancer of unknown primary. Clinical guidelines include PET/CT to inform management decisions that may offer clinical benefit. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

SUPPLEMENTAL INFORMATION

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in 'Supplemental Information' if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

Current National Comprehensive Cancer Network and other relevant U.S.-based guidelines are summarized in each section of the Rationale.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Medicare National Coverage

The Medicare coverage policy on positron emission tomography scans, effective for claims with dates of service on and after June 11, 2013, is summarized in Table 1.¹²

Table 1. National FDG PET Coverage for Oncologic Conditions

FDG PET for Cancers by Tumor Type	Initial Treatment Strategy (formerly "diagnosis" & "staging")	Subsequent Treatment Strategy (formerly "restaging" & "monitoring response to treatment")
Colorectal	Cover	Cover
Esophagus	Cover	Cover
Head and Neck (not thyroid, CNS)	Cover	Cover
Lymphoma	Cover	Cover
Non-small cell lung	Cover	Cover
Ovary	Cover	Cover
Brain	Cover	Cover
Cervix	Cover with exceptions *	Cover

Small cell lung	Cover	Cover
Soft tissue sarcoma	Cover	Cover
Pancreas	Cover	Cover
Testes	Cover	Cover
Prostate	Non-cover	Cover
Thyroid	Cover	Cover
Breast (male and female)	Cover with exceptions *	Cover
Melanoma	Cover with exceptions *	Cover
All other solid tumors	Cover	Cover
Myeloma	Cover	Cover
All other cancers not listed	Cover	Cover

*Cervix: Nationally non-covered for the initial diagnosis of cervical cancer related to initial anti-tumor treatment strategy. All other indications for initial anti-tumor treatment strategy for cervical cancer are nationally covered.

*Breast: Nationally non-covered for initial diagnosis and/or staging of axillary lymph nodes. Nationally covered for initial staging of metastatic disease. All other indications for initial anti-tumor treatment strategy for breast cancer are nationally covered.

*Melanoma: Nationally non-covered for initial staging of regional lymph nodes. All other indications for initial anti-tumor treatment strategy for melanoma are nationally covered.

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POLICY HISTORY - THIS POLICY WAS APPROVED BY THE FEP® PHARMACY AND MEDICAL POLICY COMMITTEE ACCORDING TO THE HISTORY BELOW:

Date	Action	Description
September 2024	New policy- Add to Radiology/Interventional Radiology section	Policy created by separating out brain cancer, melanoma, cancer of unknown primary, and single-site metastatic disease indications from policy 6.01.26. Policy revised with literature review through October 13, 2023. No references added. No changes to policy statements.
September 2025	Replace policy	Policy updated with literature review through October 28, 2024; references added. Policy statements unchanged.
March 2026	Replace policy	Policy updated with literature review through October 2, 2025; no references added. Significant editorial refinements to policy statements; intent unchanged.

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