

Medical Policy



**Title: Positron Emission Tomography (PET) Scanning-
Oncologic Applications (Lung)**

Related Policies:	<ul style="list-style-type: none"> ▪ <i>PET Scanning- Oncologic Applications (Bone and Sarcoma)</i> ▪ <i>PET Scanning- Oncologic Applications (Brain, Melanoma, Unknown Primary)</i> ▪ <i>PET Scanning- Oncologic Applications (Breast and Gynecologic)</i> ▪ <i>PET Scanning- Oncologic Applications (Gastrointestinal and Pancreatic)</i> ▪ <i>PET Scanning- Oncologic Applications (Hematologic)</i> ▪ <i>PET Scanning- Oncologic Applications (Lung)</i> ▪ <i>PET Scanning: Miscellaneous (Non-cardiac, Non-oncologic) Applications of Fluorine 18 Fluorodeoxyglucose</i> ▪ <i>PET Scanning- Oncologic (Thyroid, Neuroendocrine, Head and Neck)</i>
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Professional / Institutional
Original Effective Date: October 1, 1997 / September 11, 2004
Latest Review Date: January 27, 2026
Current Effective Date: January 27, 2026

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Populations	Interventions	Comparators	Outcomes
Individuals: <ul style="list-style-type: none"> • With suspected non-small-cell lung cancer and inconclusive results from other imaging techniques 	Interventions of interest are: <ul style="list-style-type: none"> • Adjunctive ¹⁸F-FDG-PET or ¹⁸F-FDG-PET/CT 	Comparators of interest are: <ul style="list-style-type: none"> • Conventional imaging techniques 	Relevant outcomes include: <ul style="list-style-type: none"> • Test validity
Individuals: <ul style="list-style-type: none"> • With diagnosed non-small-cell lung cancer and in need of staging or restaging information 	Interventions of interest are: <ul style="list-style-type: none"> • ¹⁸F-FDG-PET or ¹⁸F-FDG-PET/CT 	Comparators of interest are: <ul style="list-style-type: none"> • Conventional imaging techniques 	Relevant outcomes include: <ul style="list-style-type: none"> • Test validity
Individuals: <ul style="list-style-type: none"> • With suspected non-small-cell lung cancer or who are asymptomatic after completing non-small-cell lung treatment 	Interventions of interest are: <ul style="list-style-type: none"> • ¹⁸F-FDG-PET or ¹⁸F-FDG-PET/CT 	Comparators of interest are: <ul style="list-style-type: none"> • Conventional imaging techniques 	Relevant outcomes include: <ul style="list-style-type: none"> • Test validity
Individuals: <ul style="list-style-type: none"> • With diagnosed small-cell lung cancer diagnosis and in need of staging or restaging information 	Interventions of interest are: <ul style="list-style-type: none"> • ¹⁸F-FDG-PET or ¹⁸F-FDG-PET/CT 	Comparators of interest are: <ul style="list-style-type: none"> • Conventional imaging techniques 	Relevant outcomes include: <ul style="list-style-type: none"> • Test validity
Individuals: <ul style="list-style-type: none"> • With suspected small-cell lung cancer or who are asymptomatic after completing small-cell lung treatment 	Interventions of interest are: <ul style="list-style-type: none"> • ¹⁸F-FDG-PET or ¹⁸F-FDG-PET/CT 	Comparators of interest are: <ul style="list-style-type: none"> • Conventional imaging techniques 	Relevant outcomes include: <ul style="list-style-type: none"> • Test validity

DESCRIPTION

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.

The utility of PET scanning for the diagnosis, staging and restaging, and surveillance of malignancies varies by type of cancer. In general, PET scanning can distinguish benign from malignant masses in certain circumstances and improve the accuracy of staging by detecting additional disease not detected by other imaging modalities. Therefore, PET scanning for diagnosis and staging of malignancies can be considered medically necessary when specific criteria are met for specific cancers, as outlined in the policy statements. For follow-up after initial diagnosis and staging have been performed, there are a clinical scenarios in which PET can

improve detection of recurrence, and lead to changes in management that improve the net health outcome.

OBJECTIVE

The objective of this evidence review is to determine whether the use of positron emission tomography for the diagnosis, staging and restaging, and/or surveillance improves the net health outcome in individuals with lung cancer.

BACKGROUND

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.

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.

POLICY**A. Lung Cancer**

1. FDG-PET or FDG-PET/CT(positron emission tomography (PET))-scanning may be considered **medically necessary** for any of the following applications:
 - a. Individuals with a solitary pulmonary nodule to distinguish between benign and malignant disease when prior CT scan and chest x-ray findings are inconclusive or discordant,
 - b. As staging or restaging technique in those with known non-small-cell lung cancer, **AND**
 - c. To determine resectability for individuals with a presumed solitary metastatic lesion from lung cancer.
2. FDG-PET or FDG-PET/CT scanning may be considered **medically necessary** in staging of small-cell lung cancer if limited stage is suspected based on standard imaging.
3. FDG-PET or FDG-PET/CT scanning is considered **experimental / investigational** in staging of small-cell lung cancer if extensive stage is established and in all other aspects of managing small-cell lung cancer.

POLICY GUIDELINES

- A. For this policy, PET scanning is discussed for the following 4 applications in oncology.
 1. Diagnosis
Diagnosis refers to use of PET as part of the testing used in establishing whether a patient has cancer.
 2. Staging
Staging refers to use of PET to determine the stage (extent) of the cancer at the time of diagnosis before any treatment is given. Imaging at this time is generally to determine whether the cancer is localized. This may also be referred to as initial staging.
 3. Restaging
Restaging refers to imaging after treatment in 2 situations.
 - a. Restaging is part of the evaluation of a patient in whom a disease recurrence is suspected based on signs and/or symptoms.
 - b. Restaging also includes determining the extent of malignancy after completion of a full course of treatment.
 4. Surveillance
Surveillance refers to the use of imaging in asymptomatic patients (patients without objective signs or symptoms of recurrent disease). This imaging is completed 6 months or more (≥ 12 months for lymphoma) after completion of treatment.

Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

RATIONALE

This evidence review was created using searches of the PubMed database. The most recent literature update was performed through September 25, 2025.

The review has been informed by multiple evaluations of positron emission tomography (PET), including TEC Assessments, other systematic reviews, meta-analyses, and decision analyses.

Evidence reviews assess whether a medical test is clinically useful. A useful test provides information to make a clinical management decision that improves the net health outcome. That is, the balance of benefits and harms is better when the test is used to manage the condition than when another test or no test is used to manage the condition.

The first step in assessing a medical test is to formulate the clinical context and purpose of the test. The test must be technically reliable, clinically valid, and clinically useful for that purpose. Evidence reviews assess the evidence on whether a test is clinically valid and clinically useful. Technical reliability is outside the scope of these reviews, and credible information on technical reliability is available from other sources.

POSITRON EMISSION TOMOGRAPHY AND POSITRON EMISSION TOMOGRAPHY PLUS COMPUTED TOMOGRAPHY

Clinical Context and Test Purpose

PET and PET combined with CT or MRI are used in oncology for diagnosis, staging, restaging, and surveillance. Diagnostic use of PET aids in distinguishing between benign and malignant processes. Initial staging assesses the extent and location of cancer before treatment. Restaging reevaluates cancer after treatment depending on tumor and treatment approach to establish a post-treatment baseline, or over time when recurrence is suspected. Surveillance involves imaging patients without objective signs or symptoms of recurrent disease (altered symptoms) or with stable symptoms, generally six months or more after treatment.

The following PICO was used to select literature to inform this review.

Populations

The relevant populations of interest are:

- individuals who are suspected of having lung cancer.
- individuals diagnosed with lung cancer and need information on the extent of cancer (initial staging upon diagnosis confirmation or restaging following treatment).
- individuals with lung cancer who have completed a round of treatment and may be at risk of recurrence.

Interventions

The test being considered is PET or PET/CT. A PET scan is a nuclear medicine 3-dimensional imaging technique. Radioactive tracers are ingested or injected, and radioactive emissions are detected by an imaging device, allowing observations on blood flow, oxygen use, and metabolic processes around the lesions. When CT is added to PET, the images are superimposed, providing additional anatomic information. The most common radioactive tracer used for oncologic applications is fluorine 18 (¹⁸F) fluorodeoxyglucose (FDG). Radiation exposure from PET and PET/CT is considered moderate to high.

Comparators

The comparators of interest are conventional imaging techniques such as ultrasound, magnetic resonance imaging (MRI), and x-rays.

Outcomes

The general outcomes of interest are related to the clinical validity of PET, PET/CT, or PET/MRI in (1) diagnosing suspected cancer, (2) providing staging or restaging information, and (3) detecting recurrence following cancer treatment. Clinical validity is most often measured by sensitivity, specificity, positive predictive values (PPV), and negative predictive values (NPV). For the clinical utility of PET, PET/CT, or PET/MRI to be demonstrated, the tests would need to inform treatment decisions that would improve survival and quality of life.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess the clinical validity of PET and PET/CT, studies should report sensitivity, specificity, PPV, and NPV. Additionally, studies reporting false-positive rates and false-negative rates are informative.
- To assess the clinical utility of PET and PET/CT, studies should demonstrate how results of these imaging techniques impacted treatment decisions and overall management of the patient.

Clinically Valid

A test must detect the presence or absence of a condition, the risk of developing a condition in the future, or treatment response (beneficial or adverse).

Clinical validity can be measured by comparing results from PET, PET/CT, or PET/MRI with results from conventional imaging techniques.

Clinically Useful

A test is clinically useful if the use of the results informs management decisions that improve the net health outcome of care. The net health outcome can be improved if individuals receive correct therapy or more effective therapy, avoid unnecessary therapy, or avoid unnecessary testing.

Ideally, outcomes for clinical utility would reflect long-term patient status, which, depending on the type of cancer, can range from months to years. To practically assess the clinical utility of PET, PET/CT or PET/MRI, studies should demonstrate how results of these imaging techniques impacted treatment decisions and overall management of the patient.

Direct Evidence

Direct evidence of clinical utility is provided by studies that have compared health outcomes for individuals managed with and without the test. Because these are intervention studies, the preferred evidence would be from randomized controlled trials (RCTs).

Chain of Evidence

Indirect evidence on clinical utility rests on clinical validity. If the evidence is insufficient to demonstrate test performance, no inferences can be made about clinical utility.

PET scan research in oncology primarily addresses sensitivity and specificity through reviews and meta-analyses. Studies on changes to staging or treatment are limited but do report improved tumor type specific health outcomes. Following evidence-based clinical guidelines may enhance

net health outcomes by improving therapeutic effectiveness, reducing unnecessary tests, treatments, or adverse events.

REVIEW OF EVIDENCE

Lung Cancer

Use of PET scanning may have a clinical role in individuals with solitary pulmonary nodules for whom a diagnosis is uncertain after CT scan or chest radiograph. Younger individuals who have no smoking history have a relatively low-risk for lung cancer and, in this setting, the NPV of a PET scan is relatively high. If presented with a negative PET scan and information about the very low probability of undetected malignancy, it is quite likely that some individuals would choose to avoid the harms of an invasive sampling procedure (ie, biopsy). A meta-analysis by Barger et al (2012) evaluating pulmonary nodules using dual-time PET (a second scan added after a delay) found that its additive value relative to a single PET scan is questionable.¹

Non-Small-Cell Lung Cancer

In individuals with known non-small-cell lung cancer (NSCLC), the clinical value of PET scanning relates to improved staging information regarding the involvement of mediastinal lymph nodes, which generally excludes individuals from surgical excision..

Randomized Controlled Trials

Guldbrandsen et al (2025) conducted a multicenter, randomized controlled trial (SUPE_R) comparing surveillance with fluorine-18 fluorodeoxyglucose positron emission tomography/computed tomography ([¹⁸F]FDG PET/CT) to standard contrast-enhanced CT (ceCT) after curative treatment for stage IA–IIIC NSCLC.² A total of 750 patients were randomized to PET/CT (n=373) or CT (n=377). During a median follow-up of 21.2 months, 164 patients (22%) experienced recurrence. The proportion of recurrences treated with curative intent was identical in both groups (48%: 42/87 PET vs 37/77 CT; p=.98). More recurrences were detected through scheduled surveillance in the PET group (90%) than in the CT group (77%, p=.02). However, there were no significant differences in time to recurrence (hazard ratio [HR] 1.12; 95% confidence interval [CI] 0.82 to 1.52; p=.48) or overall survival (HR 0.97; 95% CI 0.66 to 1.43; p=.89) between groups. Although PET/CT identified more suspected recurrences and reduced the need for additional imaging, it led to more invasive diagnostic procedures (147 vs 88; incidence rate ratio 1.69; 95% CI 1.3 to 2.21; p<.01) without improving curative treatment rates, recurrence-free survival, or overall survival.

Systematic Reviews

Brea et al (2018) conducted a systematic review comparing MRI, CT, FDG-PET, and FDG-PET/CT in differentiating metastatic and nonmetastatic lymph nodes.³ A meta-analysis was not conducted. Reviewers reported that most studies showed MRI had higher sensitivities, specificities, and diagnostic accuracy than CT and PET in determining the malignancy of lymph nodes in individuals with NSCLC.

A systematic review by Ruilong et al (2017) evaluated the diagnostic value of FDG-PET/CT for detecting solitary pulmonary nodules.⁴ The literature search, conducted to May 2015, identified 12 studies (N=1297) for inclusion in the analysis. The pooled sensitivity and specificity of FDG-PET/CT to detect malignant pulmonary nodules are presented in Table 1.

He et al (2014) compared PET, PET/CT, and conventional imaging techniques for detecting recurrent lung cancer.⁵ Table 1 summarizes the diagnostic performances of the different imaging techniques.

Other meta-analyses have reported good sensitivities and specificities in the detection of lung cancer metastases (Table 1). Seol et al (2021) investigated the diagnostic performance of FDG-PET or PET/CT for detection of occult lymph node metastases in individuals with NSCLC.⁶ The literature search, conducted through March 2020, identified 14 studies (N=3535). The pooled sensitivity and specificity analyses had a high level of heterogeneity (I^2 : 81.5 and 93.7, respectively). Li et al (2017) conducted a meta-analysis of studies that compared FDG-PET/CT with gadolinium-enhanced MRI in the detection of brain metastases in individuals with NSCLC.⁷ The literature search identified 5 studies (N=941) for inclusion. Study quality was assessed using criteria recommended by the Cochrane Methods Working Group, with scores ranging from 9 to 11 on the 12-point scale. A meta-analysis by Li et al (2013) calculated the sensitivity and specificity of PET/CT in the detection of distant metastases in individuals with lung cancer and with NSCLC (see Table 1).⁸

Table 1. Pooled Diagnostic Performance of Various Imaging Techniques in individuals With Lung Cancer

Type of Imaging	Detection Measured	Sensitivity (95% CI), %	Specificity (95% CI), %	DOR (95% CI)
Ruilong et al (2017) ⁴	Solitary pulmonary nodules			
FDG-PET/CT		82 (76 to 87)	81 (66 to 90)	18 (8 to 38)
Li et al (2017) ⁷	Brain metastases			
FDG-PET/CT		21 (13 to 32)	100 (99 to 100)	235 (31 to 1799)
Gadolinium MRI		77 (60 to 89)	99 (97 to 100)	657 (112 to 3841)
He et al (2014) ⁵	Recurrent NSCLC			
FDG-PET		94 (91 to 97)	84 (73 to 89)	65 (19 to 219)
FDG-PET/CT		90 (84 to 95)	90 (87 to 93)	79 (19 to 335)
CIT		78 (71 to 84)	80 (75 to 84)	13 (4 to 40)
Li et al (2013) ⁸	Distant metastases			
FDG-PET/CT		87 (55 to 98)	96 (93 to 98)	196 (22 to 1741)
Seol et al (2021) ⁶	Occult lymph node metastases			
FDG-PET or FDG-PET/CT		79 (70 to 86)	65 (57 to 72)	7 (5 to 10)

CI: confidence interval; CIT: conventional imaging technique; CT: computed tomography; DOR: diagnostic odds ratio; FDG: fluorine 18 fluorodeoxyglucose; MRI: magnetic resonance imaging; NSCLC: non-small-cell lung cancer; PET: positron emission tomography.

GUIDELINES

American College of Chest Physicians

In 2013 the American College of Chest Physicians issued guidelines for the diagnosis and management of NSCLC.⁹ The guidelines stated that RCTs support the use of PET or PET/CT scanning as a component of lung cancer treatment and recommended PET or PET/CT for staging, detection of metastases, and avoidance of noncurative surgical resections.

American College of Radiology

In 2019, the American College of Radiology (ACR) issued Appropriateness Criteria for noninvasive clinical staging of primary lung cancer.¹⁰ Skull base to mid-thigh PET/CT is recommended in initial clinical staging to evaluate for extrathoracic metastases in individuals with NSCLC.

In 2025, the ACR issued Appropriateness Criteria for lung cancer-surveillance after therapy.¹¹ Skull base to mid-thigh PET/CT is recommended as "usually appropriate" for posttreatment evaluation of stage I-III NSCLC regarding suspected recurrence or progression. Skull base to mid-thigh PET/CT is not recommended for routine noninvasive imaging surveillance following treatment of stage I-III NSCLC.

National Comprehensive Cancer Network

Current National Comprehensive Cancer Network (NCCN) guidelines for NSCLC (v.8.2025) indicate that PET/CT can be used in the staging of the disease, detection of metastases, treatment planning, restaging after adjuvant treatment, and detection of disease recurrence.¹² The guidelines note that PET is "best performed before a diagnostic biopsy site is chosen in cases of high clinical suspicion for aggressive, advanced-stage tumors." However, PET is not recommended for detection of brain metastasis from lung cancers. While PET/CT is not routinely recommended for surveillance after completion of definitive therapy, it may be considered to differentiate between true malignancies and benign conditions (eg, atelectasis, consolidation, and radiation fibrosis), which may have been detected by CT imaging. If PET/CT detects recurrent disease, biopsy confirmation is necessary prior to initiating additional treatment because FDG remains avid in areas treated with radiation therapy up to 2 years.

Section Summary: Non-Small Cell Lung Cancer

Evidence for PET or PET/CT in individuals with NSCLC consists of meta-analyses. The meta-analyses have shown that use of PET or PET/CT in individuals with lung cancer can aid in the diagnosis, staging, as well as detecting metastases and recurrence. The evidence supports the use of FDG-PET and FDG-PET/CT for the diagnosis and staging and restaging of NSCLC.

The evidence does not support the use of FDG-PET and FDG-PET/CT for surveillance of NSCLC.

Small-Cell Lung Cancer

Approximately 15% of all lung cancers are small-cell lung cancer (SCLC). Individuals with SCLC are typically defined as having either limited stage or extensive-stage disease. Most individuals diagnosed with SCLC have an extensive-stage disease, which is characterized by distant metastases, malignant pericardial or pleural effusions, and/or contralateral hilar lymph node involvement. Limited stage SCLC includes the ipsilateral hemithorax and regional or mediastinal lymph nodes and can be encompassed in a safe radiotherapy field.

Systematic Reviews

A systematic review by Lu et al (2014) included 12 studies (N=369) of FDG-PET/CT for staging SCLC.¹³ Although estimated pooled sensitivity and pooled specificity were 98% (95% CI, 94% to 99%) and 98% (95% CI, 95% to 100%), respectively, included studies were small (median sample size=22); of primarily fair to moderate quality; and heterogeneous in design (eg, retrospective, prospective), PET parameter assessed, indication for PET, and reference standard used. It is not possible from the limited, poor-quality evidence in this systematic review to determine whether the use of PET adds value relative to conventional staging tests for SCLC.

A systematic review by Ruben and Ball (2012) on staging SCLC found PET to be more effective than conventional staging methods; however, a limitation of this review is that the reviewers did not conduct a quality assessment of individual studies.¹⁴

In an Agency for Healthcare Research and Quality review conducted by Seidenfeld et al (2006) that included 6 studies of patients with SCLC and non-brain metastases, PET plus conventional staging was more sensitive in detecting disease than conventional staging alone.¹⁵ Use of PET may correctly upstage and downstage disease, and studies have reported a very high occurrence of patient management changes attributed to PET. However, the quality of these studies was consistently poor, and insufficient detail in reporting was the norm, especially with respect to the reference standard.

GUIDELINES

American College of Radiology

In 2019, the ACR issued Appropriateness Criteria for noninvasive clinical staging of primary lung cancer.¹⁰ Use of PET or PET/CT is recommended for initial clinical staging in individuals with clinical stage I or II limited stage SCLC being considered for curative treatment.

In 2025, the ACR issued Appropriateness Criteria for lung cancer-surveillance after therapy.¹¹ Skull base to mid-thigh PET/CT is recommended as "usually appropriate" for posttreatment evaluation of stage I-III SCLC regarding suspected recurrence or progression. Skull base to mid-thigh PET/CT is recommended as "may be appropriate" for routine noninvasive imaging surveillance following treatment of stage I-III SCLC.

National Comprehensive Cancer Network

Current NCCN guidelines for SCLC (v.2.2026) indicate PET/CT can be used in the staging of the disease if limited stage is suspected or if needed to clarify stage. If extensive-stage is established, brain imaging, MRI (preferred), or CT with contrast is recommended. Use of PET/CT "is not recommended for routine follow-up unless a contrast CT or MRI is contraindicated."¹⁶

Section Summary: Small Cell Lung Cancer

Evidence for PET or PET/CT for individuals with SCLC consists of systematic reviews and meta-analyses. These reviews have shown potential benefits in using PET for staging, though the quality of the studies was low. The evidence supports the use of FDG-PET and FDG-PET/CT for the diagnosis, staging, and restaging of SCLC. Guidelines support the use of PET/CT if a limited stage is suspected or to clarify staging. If extensive-stage is established, other imaging techniques (MRI or CT with contrast) are preferred.

The evidence does not support the use of FDG-PET and FDG-PET/CT for surveillance of SCLC.

SUPPLEMENTAL INFORMATION

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the evidence review conclusions.

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, American College of Radiology, and other relevant U.S.-based guidelines are summarized in each section of the Rationale.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Table 2. 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

FDG PET for Cancers by Tumor Type	Initial Treatment Strategy (formerly "diagnosis" & "staging")	Subsequent Treatment Strategy (formerly "restaging" & "monitoring response to treatment")
Myeloma	Cover	Cover
All other cancers not listed	Cover	Cover

CNS: central nervous system; FDG: fluorodeoxyglucose; PET: positron emission tomography.

*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.

Ongoing and Unpublished Clinical Trials

A search of ClinicalTrials.gov in September 2025 identified a large number of ongoing and unpublished trials that would likely influence this review.

CODING

The following codes for treatment and procedures applicable to this policy are included below for informational purposes. This may not be a comprehensive list of procedure codes applicable to this policy.

Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement. Please refer to the member’s contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

The code(s) listed below are medically necessary ONLY if the procedure is performed according to the “Policy” section of this document.

CPT/HCPCS	
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)
78812	Positron emission tomography (PET) imaging; skull base to mid-thigh
78813	Positron emission tomography (PET) imaging; whole body
78814	Tumor imaging, positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization; limited area (e.g. chest, head/neck)
78815	Tumor imaging, positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization; skull base to mid-thigh
78816	Tumor imaging, positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization; whole body
A9552	Fluorodeoxyglucose F-18 FDG, diagnostic, per study dose, up to 45 millicuries
A9597	Positron emission tomography radiopharmaceutical, diagnostic, for tumor identification, not otherwise classified
A9598	Positron emission tomography radiopharmaceutical, diagnostic, for non-tumor identification, not otherwise classified
G0235	PET imaging, any site not otherwise specified

REVISIONS	
Posted 01-28-2025 Effective 02-27-2025	Oncologic Applications Lung was originally part of the Positron Emission Tomography (PET) Scanning: Oncologic Applications medical policy. Oncologic Applications for Lung has been pulled out and placed into a separate medical policy, Positron Emission Tomography (PET) Scanning: Oncologic Applications (Lung). The medical policy language was unchanged.
01-27-2026	Updated Description Section Updated Policy Section <ul style="list-style-type: none"> ▪ Added A1: FDG-PET or FDG-PET/CT(positron emission tomography (PET)) ▪ Removed A1: PET ▪ Removed A1a: as a single scan technique (not dual-time) ▪ Changed A2, A3: From PET to FDG-PET or FDG-PET/CT

REVISIONS	
	<p>Updated Policy Guidelines Section</p> <ul style="list-style-type: none"> ▪ Added: For this policy, PET scanning is discussed for the following 4 applications in oncology. <ol style="list-style-type: none"> 1. <u>Diagnosis</u> Diagnosis refers to use of PET as part of the testing used in establishing whether a patient has cancer. 2. <u>Staging</u> Staging refers to use of PET to determine the stage (extent) of the cancer at the time of diagnosis before any treatment is given. Imaging at this time is generally to determine whether the cancer is localized. This may also be referred to as initial staging. 3. <u>Restaging</u> Restaging refers to imaging after treatment in 2 situations. <ol style="list-style-type: none"> a. Restaging is part of the evaluation of a patient in whom a disease recurrence is suspected based on signs and/or symptoms. b. Restaging also includes determining the extent of malignancy after completion of a full course of treatment. 4. <u>Surveillance</u> Surveillance refers to the use of imaging in asymptomatic patients (patients without objective signs or symptoms of recurrent disease). This imaging is completed 6 months or more (≥ 12 months for lymphoma) after completion of treatment. ▪ Removed: As with any imaging technique, the medical necessity of positron emission tomography (PET) scanning depends in part on what imaging techniques are used before or after the PET scanning. Due to its expense, PET scanning is typically considered after other techniques, such as computed tomography (CT), magnetic resonance imaging (MRI), or ultrasonography, provide inconclusive or discordant results. If so, the medical necessity of subsequent imaging during the same diagnostic evaluation is unclear. Thus, PET should be considered for the medically necessary indications above only when standard imaging (eg, CT, MRI) is inconclusive or not indicated, including situations when an individual has a contraindication to intravenous contrast agents, making initial CT scans unattainable. Selection criteria for PET scanning may also be complex. For example, it may be difficult to determine whether a PET scan in an individual with colorectal cancer is being performed to detect hepatic disease or evaluate local recurrence. Due to the complicated hierarchy of imaging options in individuals with malignancy and complex patient selection criteria, a possible implementation strategy for this policy is its use for retrospective review, possibly focusing on cases with multiple imaging tests, including PET scans. 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.
	Updated Rationale Section
	Updated Reference Section

REFERENCES

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