 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<p style="text-align: center;"> <b>Positron Emission Tomography          Computed Tomography (PET- CT)          Oncology-Use          Medical Coverage Policy</b> </p>
---	--

## 2025 New Policy

### UTILIZATION \* ALERT\*

- Prior to use of this MCP for evaluation of medical necessity, benefit coverage **MUST** be verified in the member's EOC or benefit document.
- For Medicare members, please consult the Medicare Coverage Database.
- Note: After searching the Medicare Coverage Database, if no NCD/LCD/LCA is found, then use the policy referenced above for coverage guidelines

#### I. Procedure: Positron Emission Tomography Computed Tomography (PET- CT), Oncology-Use

#### II. Overview

**Positron Emission Tomography Computed Tomography (PE-CT) scan**, combines two nuclear imaging techniques, to provide highly detailed images of the body's anatomy and function, to identify/detect, diagnose malignancy, stage cancer and monitor/assess treatment response/effectiveness. PET-CT is medically appropriate for oncology and non-oncology use through the use of radioactive tracer: fluorodeoxyglucose (FDG) or non-FDG tracer. See section IV and V for details.

#### III. Scope

The policy is limited to oncology application of PET-CT. Please refer to related policy when addressing non-oncology use of PET-CT.

***Related policy:***

***Positron Emission Tomography Computed Tomography (PET- CT), Non-Oncology Use***

#### IV. Referral Management

PET-CT is medically necessary when the patient meets the criteria for initial treatment strategy **and/or** subsequent treatment strategy of malignancy.

**A. Initial Treatment Strategy (Diagnosis and Staging)**

PET/CT is indicated for initial evaluation or staging of malignant neoplasm from diagnosis to initial staging when **ALL** of the following are met:

1. Cancers that are biopsy-proven or there is a strong suspicion of malignancy based on other diagnostic tests; **and**
2. Additional information though imaging is required to determine **1 or more** of the following:
  - a. To determine if the patient is an appropriate candidate for an invasive diagnostic or therapeutic procedure; **or**
  - b. To identify the optimal anatomic location for an invasive procedure; **or**
  - c. To determine the anatomic extent of tumor when the recommended anti-tumor treatment reasonably depends on the extent of the tumor; **and**
3. A PET-CT has not yet been performed (prior to initiation of treatment); **and**
4. The treatment for cancer has not yet been initiated; **and**
5. The patient meets any of the clinical indications cited in section IV, V, or VI.

**B. Subsequent Treatment Strategy (Re-staging and Monitoring Response to Treatment)**

PET-CT is medically necessary for subsequent evaluation or re-staging of malignant neoplasm (after initiation or completion of treatment) when **ALL** of the following are met:

1. The need for re-imaging, as indicated by **1 or more** of the following:
  - a. Imaging is required before initiation of tumor-specific therapy (such as targeted radionuclide therapy); **or**
  - b. Suspected of recurrence or residual disease as indicated by **any** of the following:
    - i. To evaluate response to treatment; **or**
    - ii. Presence of new symptom; **or**
    - iii. Abnormal findings on physical examination; **or**
    - iv. Abnormal laboratory test or other imaging study
2. The patient meets any of applicable clinical indication in section IV, V or VI.


**V. Referral Management**

**A. Clinical Indication for Adult**

**Oncology application of Fluorodeoxyglucose (FDG) tracer PET-CT**

FDG PET CT is clinically indicated for the following types of tumors (the list is not exhaustive):

1. Cutaneous malignancy;
2. Musculoskeletal malignancy;
3. Lymphoma;


 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

4. Primary tumor of Central Nervous System;
5. Pheochromocytoma & neuroblastoma;
6. Neuroendocrine malignancy;
7. Cancer of unknown primary;
8. Endocrine malignancy;
9. Head and neck malignancy;
10. Breast tumor;
11. Small-Cell and non-small cell lung malignancy;
12. Gastrointestinal malignancy;
13. Genitourinary malignancy;
14. Testicular and penile malignancy; or
15. Gynecological malignancy

The use of [<sup>18</sup>F] FDG PET-CT is medically necessary when the patient meets the applicable criteria for the tumor-specific condition as detailed in the following:

**Table 1. Cutaneous Malignancy**


<b>Skin Cancer</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Staging of patients with confirmed disseminated melanoma to assess the extent of disease prior to treatment.	To assess response to isolated limb infusion for malignant melanoma.
Assessment for distant disease in melanoma when radical dissection is contemplated (nodal or metastatic disease).	Response assessment to immunomodulatory therapy for melanoma.
<b>Exclusion:</b> <ul style="list-style-type: none"> <li>• Systemic involvement in skin lymphomas and large cell transformation in mycosis fungoides.</li> <li>• Primary malignancy where dermatomyositis is suspected to represent a paraneoplastic manifestation.</li> <li>• Not indicated for early-stage or clinically localized melanoma who are candidates to undergo sentinel node biopsy</li> </ul>	
<b>Melanoma (Staging)</b>	
Staging with localized “high risk” melanoma, or	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

Evaluation of patients with isolated melanoma metastases when surgery or other ablative therapies are being considered	
<b>Metastatic Melanoma (Immunotherapy)</b>	
<b>Staging</b>	<b>Response to treatment</b>
Baseline staging prior to starting immunotherapy	Early response assessment after 2-4 cycles of immunotherapy of patients with metastatic melanoma & currently receiving immunotherapy
	End of therapy response assessment for patients with metastatic melanoma at the end of immunotherapy

**Table 2. Musculoskeletal Malignancy**


<b>Bone and Soft Tissue Sarcomas</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Initial staging with histologically confirmed high grade ( $\geq$ Grade 2), or ungradable, soft tissue or bone sarcomas, when conventional workup is negative or equivocal for metastatic disease, prior to curative intent therapy	Re-staging of patients with suspicion of, or histologically confirmed, recurrent sarcoma (local recurrence of limited metastatic disease) when radical salvage therapy is being considered.
Staging of <b>metastatic sarcoma</b> , considered for liver or lung metastasectomy where anatomical imaging has not identified any extra-thoracic or extra-hepatic disease which would preclude surgery.	To assess response to treatment in high-grade sarcomas.
Staging of <b>high-grade sarcomas</b> (such as osteosarcoma, Ewing's sarcoma, rhabdomyosarcoma) unless metastatic disease has already been proven.	For follow-up assessment of post-surgical treatment (such as operative bed surveillance for local recurrence), particularly in cases where metallic orthopedic implants preclude or complicate conventional imaging.
High-grade sarcoma pre-amputation setting where detection of distant disease will alter surgical management.	
To aid in the differentiation of ambiguous findings from conventional imaging in selected cases	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--


For assessment of suspected malignant transformation within plexiform neurofibromas in patients with neurofibromatosis type 1, particularly with dual-time-point imaging. <b>Exclusion:</b> <b><i>PET-CT is experimental/investigational in the staging of chondrosarcoma</i></b>	
<b>Plexiform Neurofibromas (Diagnosis)</b>	
For patients with suspicion of malignant transformation of plexiform neurofibromas	

**Table 3. Lymphoma**

<b>Lymphoma</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Staging and restaging of FDG-avid lymphoma (including indolent lymphoma and post-transplant lymphoproliferative disorder (PTLD) in patients who are being considered for active treatment.  To identify a suitable biopsy site in low grade lymphoma where there is a high index of clinical suspicion for high grade transformation.  <b><i>Re-biopsy is not required prior to immunochemotherapy based on standardized uptake value alone.</i></b>	
<b>Hodgkin lymphoma</b>	
Staging: a baseline PET/CT scan is required for all treatment with curative intent	<ul style="list-style-type: none"> <li>Interim PET (iPET): to assess disease response to chemotherapy and guide clinical management.</li> <li>Assessment of remission status at the end of treatment where complete metabolic response is not achieved at iPET.</li> <li>Post salvage therapy and assess residual volume of disease and suitability prior to bone marrow transplant</li> </ul>

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--

	<ul style="list-style-type: none"> <li>• Evaluation and staging of suspected relapse for FDG-avid lymphomas in symptomatic patients.</li> <li>• <b><i>Surveillance imaging is not recommended.</i></b></li> </ul>
<b>Diffuse large B-cell lymphoma (including Burkitt's lymphoma) and T-cell lymphoma</b>	
Staging where clinically feasible	<ul style="list-style-type: none"> <li>• End of treatment, especially for further assessment of residual masses on CT scan</li> <li>• Post salvage therapy and prior to autologous transplant</li> <li>• Evaluation and staging of suspected relapse for FDG-avid lymphomas in symptomatic patients.</li> <li>• <b><i>Surveillance imaging is not recommended.</i></b></li> </ul>
<b>Follicular lymphoma</b>	
For apparent stage I or II disease on CT who are being considered for curative radiotherapy	
<b>CAR-T therapy</b>	
PET CT baseline (pre-treatment) and during follow-up at day 28 and day 100 are required for patients with Mantle Cell Lymphoma or DLBCL and undergoing CAR-T therapy.	
<b><i>PET CT is not routinely indicated beyond this point if complete metabolic response has already been achieved</i></b>	
<b>Myeloma and Plasmacytoma</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
<b>Newly Diagnosed Myeloma:</b> <ul style="list-style-type: none"> <li>• For workup of newly diagnosed, secretory multiple myeloma.</li> <li>• For work-up of newly diagnosed, relapse or refractory multiple myeloma.</li> </ul> <b>Solitary plasmacytoma:</b> <ul style="list-style-type: none"> <li>• For patients with presumed solitary plasmacytoma who are a candidate for curative intent radiotherapy</li> <li>• For work-up of solitary extramedullary plasmacytoma (to determine whether solitary or multifocal/extensive disease) including solitary bone plasmacytoma if whole-body MRI is not available or contraindicated.</li> </ul>	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

**Smoldering myeloma:**

Workup of patients with smoldering myeloma to determine /differentiate whether smoldering or active myeloma.

**Non-secretory myeloma, oligosecretory myeloma, or POEMS:**

Baseline staging and response assessment.


- To assess the effectiveness of treatment.

**Non-Routine Indications**

PET CT may be considered in other FDG-avid lymphomas where the result would alter management

**Table 4. Primary Tumor of Central Nervous System**

Brain Tumor	
Diagnosis and Staging	Restaging/Monitor Treatment Response
<ul style="list-style-type: none"> <li>• To diagnose and stage brain cancer when metastatic lesion of the brain is identified but primary has not yet been found.</li> <li>• To identify the grade of malignancy when there is uncertainty on anatomical imaging.</li> </ul>	<p>For suspected relapse where magnetic resonance imaging (MRI) is equivocal, to inform decisions on surgery or radiotherapy planning.</p>
<ul style="list-style-type: none"> <li>• Assessment of suspected high-grade transformation in low-grade glioma.</li> </ul> <p>To differentiate:</p> <ul style="list-style-type: none"> <li>• Between primary central nervous system lymphoma limited to the brain and glioma in combination with MRI in highly selected cases.</li> <li>• Cerebral tumor from atypical infection in immuno-compromised patients with indeterminate lesions on MRI/CT.</li> </ul>	<ul style="list-style-type: none"> <li>• Restaging/distinguishing tumor recurrence with radiation necrosis.</li> <li>• Recurrent glioma from post-treatment effects when MRI is unhelpful.</li> </ul>

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--


**Table 5. Paraganglioma, Pheochromocytoma & Neuroblastoma**

Paraganglioma, Pheochromocytoma & Neuroblastoma	
Diagnosis and Staging	Restaging/Monitor Treatment Response
To establish diagnosis and surgical resectability in patients with high clinical suspicion of the disease	Assessment of treatment response
Staging in suspected advanced stage of disease showing high sensitivity in detecting metastasis.	To detect local recurrence and possible metastatic disease
<b><i>Radioiodinated metaiodobenzylguanidine (mIBG) is the primary tracer of choice for neuroblastoma</i></b>	

**Table 6. Neuroendocrine Malignancy**

Neuroendocrine Tumor (NET)
To evaluate patients with: <ul style="list-style-type: none"> <li>• <b>Genetic syndrome</b> predisposing to NETs and a biochemical and/or morphological suspicion of a NET in whom PET results would measurably impact management; <b>or</b></li> <li>• <b>Pancreatic, small bowel or mesenteric mass</b> with findings suggestive of a NET (such as hyper vascular pancreatic mass, desmoplastic mesenteric mass) on conventional imaging; <b>or</b></li> <li>• <b>Extra-adrenal mass</b> (such as carotid body nodule), with conventional imaging and/or elevated biomarkers suggestive of a pheochromocytoma/paraganglioma (PPGL)</li> </ul>
Assessment of possible multifocal disease in patients with paraganglioma who are being considered for surgery in combination with [ <sup>68</sup> Ga] Ga-DOTA-TOC or [ <sup>68</sup> Ga] Ga-DOTATATE PET-CT.
Assessment of selected patients with adrenocortical carcinoma who is being considered for invasive treatment where cross-sectional imaging is inconclusive
To identify patients who are unlikely to respond to <sup>177</sup> Lu-DOTATATE therapy (such as discordant lesions that are SSR negative and FDG positive).
Staging or restaging (including pre-operative assessments) of selected patients with <b>poorly differentiated neuroendocrine tumors</b> (NETs) including pheochromocytoma and paraganglioma (in particular those with succinate dehydrogenase mutations) prior to treatment with negative somatostatin receptor imaging with single photon techniques or [ <sup>68</sup> Ga] Ga-DOTA-TOC or [ <sup>68</sup> Ga] Ga-DOTA-TATE PET-CT.




 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--

Staging	Restaging/Monitor Treatment Response
<p>Initial staging of histologically proven <b>well-differentiated neuroendocrine tumor (NETs)</b>, (G1-G3), including unknown primary, or pheochromocytoma/paraganglioma (PPGL) with the following:</p> <ul style="list-style-type: none"> <li>• Lesions showing rapid progression.</li> <li>• Lesions on cross-sectional imaging, which is negative on SSR imaging, to evaluate for secondary pathology or de-differentiation.</li> </ul> <p><b>Note: PET should be requested within 1 year from the initial diagnosis</b></p> <ul style="list-style-type: none"> <li>• For risk stratification of well-differentiated NETs for treatment planning.</li> </ul>	<p>Restaging for patients with the following:</p> <ul style="list-style-type: none"> <li>• New baseline for patients with new metastatic disease on conventional imaging <b>and/or</b> clinical suspicion of de-differentiation; or</li> <li>• NETs disease when surgery (e.g., de-bulking, focal ablation, liver-directed therapy) is being considered; <b>or</b></li> <li>• NETs disease where conventional imaging is negative or equivocal at the time of clinical and/or biochemical progression; <b>or</b></li> <li>• Progressive NETs disease and is being considered for publicly funded Peptide Receptor Radionuclide Therapy (PRRT).</li> </ul> <p><b>Note: PET should be completed within 12 months. However, a more recent scan should be considered if there are concerning clinical features (e.g., de-differentiation)</b></p>

**Table 7. Cancer of Unknown Primary**


Diagnosis and Staging	Restaging/Monitor Treatment Response
<b>Cervical Adenopathy with Occult Primary</b>	
FDG PET has a high primary tumor detection rate, particularly when other diagnostic tests fail to identify the primary site.	Where clinically relevant, FDG PET is useful to determine treatment response
<b>Other Metastasis of Unknown Origin</b>	
For raised tumor markers and metastases outside the neck, FDG PET may be useful when other conventional tests fail to identify the primary tumor.	Where clinically relevant, FDG PET is useful to determine treatment response
Staging - FDG PET is recommended for evaluation of the extent of disease.	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

<b>Neuroendocrine Tumor of Unknown Primary</b>
Either FDG, DOTA-SSA or FDOPA may be recommended for neuroendocrine tumors of unknown origin depending on the level of differentiation
<b>Paraneoplastic Syndromes</b>
For detection of occult primary tumor in selected patients with non-metastatic manifestations of neoplastic disease when other imaging is negative or inconclusive.
<b>Carcinoma of Unknown Primary</b>
For detection of the primary site when imaging and histopathology failed to show a primary site, where the site of tumor will influence the choice of chemotherapy.


**Table 8. Endocrine Malignancies**

<b>Thyroid Carcinoma/Sarcoma/Anaplastic Thyroid Cancer</b>	
<b>Initial Treatment Strategy</b>	<b>Subsequent Treatment Strategy</b>
For elevated thyroglobulin levels and negative iodine scintigraphy with suspected recurrent disease.	To evaluate treatment of medullary thyroid carcinoma associated with elevated calcitonin levels with vague or normal cross-sectional imaging, bone and octreotide scintigraphy.
For anaplastic thyroid cancer in highly selected cases	To evaluate response to tyrosine kinase inhibitor (TKI) treatment for those with FDG-avid and non-iodine-avid disease.
FDG and DOPA are both useful depending on the clinical context for medullary thyroid carcinoma	
<b>Adrenocortical Carcinoma</b>	
<b>Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Staging of adrenocortical carcinoma	May be used to identify recurrence in patients with equivocal findings on conventional imaging.
<i>Diagnosis of adrenocortical carcinoma with the use of FDG PET is not indicated.</i>	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--

**Table 9. Head and Neck Malignancy**

Head and Neck Tumor	
Diagnosis and Staging	Restaging/Monitor Treatment Response
Staging and restaging of <b>high-risk disseminated disease</b> (such as advanced loco-regional disease) and primary sites with a high propensity for disseminated disease (such as nasopharyngeal and hypopharyngeal cancer).	
In situations when clinical staging is challenging, such as when conventional imaging yields inconclusive results.	To monitor response, 3-6 months post chemo or radiotherapy in patients with locally advanced, node positive, head and neck cancer or metastatic disease.
To identify the primary site of <b>metastatic squamous cell carcinoma in cervical lymph nodes</b> , with no primary site identified on other imaging.	To differentiate relapse from treatment effects when suspected to have recurrence of tumor when MRI is inconclusive.
For biopsy proven <b>metastatic cervical lymphadenopathy with no primary</b> found on clinical examination and where CT/MRI are negative/equivocal.	For clinically suspected disease recurrence post treatment where CT/MRI results are negative or vague.
Prior to biopsy, if standard imaging fails to identify a primary site.	
<b>H &amp; N Node Positive</b> (baseline staging) baseline staging of node positive (N1-N3) H&N cancer where PET will impact radiation therapy	<b>H &amp; N (re-staging after chemotherapy)</b> To assess patients with N1-N3 metastatic squamous cell carcinoma of the H&N after chemoradiation (HPV negative); or who have residual neck nodes $\geq 1.5\text{cm}$ on re-staging CT performed 10-12 weeks post therapy (HPV positive).
Nasopharyngeal (baseline staging)	
Staging of N3 <b>upper aerodigestive tract cancer</b>	
Staging of T4 <b>cancer of hypopharynx or nasopharynx</b>	
In selected cases of advanced disease requiring complex management decisions through a multidisciplinary team referral process.	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--

Thyroid	
<b>Thyroid (recurrent or persistent) disease</b> For suspected (elevated and/or rising tumor markers) with negative or equivocal conventional imaging work-up.	
<b>Anaplastic Thyroid</b> Staging of histologically proven anaplastic thyroid cancer with negative or equivocal conventional imaging work-up.	
<b>Medullary Thyroid</b> (staging & recurrent) Baseline staging of histologically proven medullary thyroid cancer when being considered for curative intent therapy or where recurrent disease is suspected on the basis of elevated and/or rising tumor markers with negative or equivocal conventional imaging work-up.	
Differentiated Thyroid Cancer	
<b>Differentiated Thyroid Cancer</b> <ul style="list-style-type: none"> <li>For diagnosis, with rising thyroglobulin and negative or equivocal conventional imaging.</li> <li>Prior to starting Tyrosine Kinase Inhibitor (TKI) therapy in patients with iodine refractory disease</li> </ul>	Prior to radical treatment for recurrent locoregional disease or oligometastatic disease in selected patients
Esophageal and Gastro Esophageal Junction	
Baseline staging assessment of patients with esophageal/GE Junction cancer who are being considered for curative therapy.	<ul style="list-style-type: none"> <li>Repeat PET/CT upon completion of pre-operative/ neoadjuvant therapy, prior to surgery; <b>or</b></li> <li>Re-staging of patients with locoregional recurrence, after primary treatment and being considered for definitive salvage therapy</li> </ul>

**Table 10. Breast Tumor**

Breast Tumor	
<b>Primary staging</b>	<b>Assessment of Recurrence</b>




KAISER PERMANENTE®


Mid-Atlantic States

**Positron Emission Tomography  
Computed Tomography (PET- CT)  
Oncology-Use  
Medical Coverage Policy**

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Initial staging of clinical stage IIA (T1N1 or T2N0) and strongly recommended in clinical stage <math>\geq</math> IIB breast cancer, and when performed before surgery;</li><li>• To identify occult primary breast cancer in highly selected groups with proven lymph nodal (particularly axillary lymph nodes) or distant metastatic disease but undetected lesions on dedicated breast imaging.</li><li>• Indicated when standard staging imaging studies are inconclusive or suspicious particularly when required to guide management decisions such as pre-operative systemic therapy.<br/><i>Note:</i><ul style="list-style-type: none"><li>○ Bone scan or sodium fluoride PET-CT may not be needed if FDG PET-CT is performed.</li><li>○ FDG PET-CT is less informative in cases of lobular cancers and low-grade tumors.</li></ul></li><li>• Staging of inflammatory or non-inflammatory, inoperable, non-metastatic locally advanced breast cancer, instead of and not in addition to CT scan and bone scan.</li><li>• To complement or replace standard staging imaging studies on high-risk patients, such as:<ul style="list-style-type: none"><li>○ Laboratory values, clinical signs and symptoms are suggestive of the presence of metastasis;</li><li>○ Aggressive tumor biology, such as triple-negative breast carcinoma;<br/><i>Note:</i><br/><i>Other aggressive breast cancer phenotypes, known to be FDG-avid include grade 3 ductal cancer, high Ki67, ER/PR-negative, luminal B cancers.</i></li></ul></li></ul> | <ul style="list-style-type: none"><li>• Indicated when there is suspicion of recurrent disease or standard imaging studies are inconclusive.<br/><i>Note:</i><ul style="list-style-type: none"><li>○ A high-resolution diagnostic, contrast-enhanced imaging can be achieved with a CT FDG PET-CT</li><li>○ Sodium fluoride PET-CT or bone scan may not be needed if FDG PET-CT is performed and clearly indicates bone metastasis findings.</li></ul></li><li>• For restaging of patients with confirmed regional recurrence or clinical suspicion of a relapsed disease (such as elevated tumor markers such as elevated CA-125, CEA or CA 15-3 markers, chest wall tenderness, etc.) equivocal on standard imaging</li><li>• To differentiate treatment-induced brachial plexopathy from tumor infiltration in symptomatic patients with vague or normal MRI.</li><li>• To replace standard restaging imaging studies among those with suspected or proven allergy to CT or MRI contrast agents.</li></ul> |
|---|---|


 <p><b>KAISER PERMANENTE®</b> Mid-Atlantic States</p>	<p><b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b></p>
--	---

<ul style="list-style-type: none"> <li>○ High tumor burden: <ul style="list-style-type: none"> <li>▪ Large tumor (e.g. &gt; 5 cm, T3) and/or;</li> <li>▪ Clinically positive axillary nodes (cN+)</li> </ul> </li> <li>● To replace standard staging imaging studies with proven or suspected allergy to CT or MRI contrast agents.</li> </ul>	
<p><b>Indeterminate or ambiguous breast lesions</b></p> <p>When an FDG-avid intramammary abnormality has been incidentally identified on FDG PET-CT scan (performed for reasons other than breast cancer), the recommendation is to exclude breast cancer during evaluation, including correlation with dedicated breast imaging and frequently histological confirmation.</p>	<p><b>Response to treatment</b></p> <ul style="list-style-type: none"> <li>● For early evaluation of response to neoadjuvant therapy, particularly in triple negative or Her2+ disease. Note: <i>Baseline FDG PET-CT is recommended.</i></li> <li>● Assessment of response to systemic treatment as clinically indicated, particularly those whose disease is not well demonstrated using other diagnostic techniques (such as bone metastases) or in complex patients with multisystemic disease (for identifying differential response and guide clinical management).</li> </ul>
<p><b>Locally Advanced Invasive Ductal Breast Cancer</b></p>	
<p>Staging with histologically confirmed clinical stage IIb or stage III breast cancer who are being considered for curative intent combined modality treatment (surgical resection, chemotherapy, radiotherapy); and/or repeat PET on completion of neoadjuvant therapy, prior to surgery (when there is clinical suspicion of progression)</p>	<p>Re-staging with locoregional recurrence after primary treatment and being considered for ablative/salvage therapy.</p>
<p><b>Oligometastatic Invasive Ductal Breast Cancer</b></p>	
<p>Staging/re-staging in oligometastatic disease (<math>\leq 4</math> metastases) and on conventional imaging prior to radical intent/ablative therapy.</p>	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--


**Table 11. Small-Cell and Non-Small Cell Lung Malignancy**

Lung Carcinoma	
Staging	Restaging / Monitor Response to Treatment
Staging of <b>small-cell lung cancer</b> with limited disease on CT and being considered for radical treatment.	To assess response to chemotherapy and/or radiation treatment for patients with apparent very good response on conventional imaging and surgery is being considered.
Staging of <b>non-small cell lung cancer (NSCLC; Clinical Stage I-III)</b> , and being considered for radical treatment: <ul style="list-style-type: none"> <li>• Intra-thoracic lymph node staging treatment with curative intent such as low probability of nodal malignancy (lymph nodes below 10 millimeter (mm) maximum short axis on CT) or</li> <li>• Enlarged intrathoracic lymph nodes (lymph nodes greater than or equal to 10 mm short axis on CT)</li> </ul>	Re-staging of <b>non-small cell lung cancer (NSCLC; Clinical Stage I-III)</b> , with locoregional recurrence, after primary treatment and being considered for definitive salvage therapy <i>Note:</i> <ul style="list-style-type: none"> <li>• <i>Histological proof is not required prior to PET if there is high clinical suspicion for NSCLC (such as based on patient history and/or prior imaging; or</i></li> <li>• <i>Strong clinical and radiological suspicion of recurrence, who are being considered for definitive salvage therapy.</i></li> </ul>
<b>Lung – Small Cell Lung Cancer (SCLC; Clinical Stage I-III)</b> Initial staging of patients with limited disease SCLC where combined modality therapy with chemotherapy and radiotherapy is being considered	Assessment of suspected disease recurrence <ul style="list-style-type: none"> <li>• To differentiate between recurrent cancer in contrast to effects of treatment.</li> </ul>
<b>Lung – Solitary Pulmonary Nodule (SPN)</b> <ul style="list-style-type: none"> <li>• For a semi-solid or solid lung nodule when the diagnosis cannot be established by a needle biopsy due to unsuccessful attempted needle biopsy; <b>or</b></li> <li>• When the use of needle biopsy is contraindicated; <b>or</b></li> <li>• The SPN is inaccessible to needle biopsy.</li> </ul>	

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

<b>Lung – Mesothelioma</b> For staging of patients with histologic confirmation of malignant mesothelioma	
For confirmation of the presence of isolated distant metastasis/synchronous tumors.	
To determine the characterization of solid solitary pulmonary nodule with an initial risk of malignancy of >10% (Brock model), where the nodule size is greater than local PET-CT detection threshold (8–10 mm), which the influence of the partial volume effect is substantial and precludes adequate sensitivity. <ul style="list-style-type: none"> <li>• In a technically difficult biopsy, failed biopsy, or when there is a significant risk of pneumothorax in the presence of medical comorbidities.</li> <li>• Smaller nodules in the upper lobes if biopsy and/or CT follow-up are not appropriate.</li> </ul>	
<b>Pleural malignancy</b>	
<b>Diagnosis and Staging</b> To guide biopsy when pleural malignancy with pleural thickening is suspected. <ul style="list-style-type: none"> <li>• FDG is less likely useful when presenting with pleural effusion only or a history of previous pleurodesis.</li> </ul> <b>Exclusion:</b> Extra-thoracic disease in proven mesothelioma when considered for multimodality treatment including radical surgery/decortication.	<b>Restaging/Monitor Treatment Response</b> To monitor response to therapy where there is uncertainty on conventional imaging.
<b>Thymic Tumor</b>	
<b>Diagnosis and Staging</b> For staging when being considered for surgical resection.	<b>Restaging/Monitor Treatment Response</b> To monitor response to therapy where there is uncertainty on conventional imaging.




 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--


To assess indeterminate thymic lesions if being considered for radical treatment.	
<b>Bronchial Carcinoid</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
FDG PET may be useful in patients with poorly differentiated bronchial carcinoid, however, <sup>68</sup> Ga-DOTA labelled somatostatin is considered the primary tracer of choice	DOTA-SSA PET <ul style="list-style-type: none"> <li>May be used to assess treatment response.</li> <li>Imaging incorporating DOTA-SSA PET is sensitive to detect disease recurrence and progression.</li> </ul>
DOTA-SSA PET <ul style="list-style-type: none"> <li>Allows detection of local recurrence &amp; possible metastatic disease</li> <li>Has high sensitivity in detecting metastasis in suspected advanced stage disease</li> <li>Considered an important part of patient work-up when peptide-receptor radionuclide therapy (PRRT) is considered for bronchial carcinoid.</li> </ul>	

**Table 12. Gastrointestinal Malignancy**

<b>Pancreatic cancer</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Staging of localized pancreatic cancer on CT prior to surgery, radiotherapy or systemic therapy to help in planning appropriate treatment.	Aids in the diagnosis of patients who are suspected of pancreatic cancer recurrence, where cross-sectional imaging is inconclusive or negative.
To diagnose primary pancreatic cancer when other imaging is non-diagnostic.	<i>Note:</i> <i>Approximately up to 30% of pancreatic adenocarcinomas may not be FDG avid.</i>
<b>Hepatocellular Carcinoma</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
To establish the diagnosis and prognosis of hepatocellular carcinoma.	Aids in the diagnosis of patients who are suspected to have recurrence of hepatocellular carcinoma, where cross-sectional imaging is equivocal or negative. <i>Note:</i> <i>Up to 50% of HCC may not be FDG avid.</i>
	To predict the probability of early recurrence after liver transplantation for HCC.

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

Gallbladder Cancer	
For staging pre-operatively	
Esophageal and Esophago-Gastric Junction Cancer	
Diagnosis and Staging	Restaging/Monitor Treatment Response
Baseline staging assessment of patients with esophageal/GE Junction cancer who are being. Considered for curative therapy	Assess treatment response upon completion of pre-operative/ neoadjuvant therapy, prior to surgery; <b>or</b>  Re-staging of patients with locoregional recurrence, after primary treatment, who are being considered for definitive salvage therapy.
For staging/re-staging of esophageal or esophago-gastric carcinoma, particularly when at risk of metastasis, suitable for radical treatment, including those who received neo-adjuvant treatment. Note: <ul style="list-style-type: none"> <li>• <i>FDG PET-CT outperforms morphological imaging for the detection of distant metastases in esophageal cancer and regional or distant lymph node involvement;</i></li> <li>• <i>FDG PET-CT evaluation can be reserved for patients with no evidence of M1 disease on CT.</i></li> <li>• <i>Review of CT and FDG PET-CT scans prior to EUS is recommended to become familiar with the nodal distribution for FNA biopsy.</i></li> </ul>	
For radiotherapy planning/volume delineation of esophageal and esophago-gastric junction cancers.	To evaluate suspected recurrence of esophago-gastric tumor when other imaging is negative or equivocal.  Note: <i>FDG PET-CT shows a good sensitivity for the diagnosis of recurrent disease, but lacks specificity, requiring histological proof of local FDG-avidity appears necessary.</i>
	To assess response to primary treatment of esophageal or esophago-gastric junction cancer.

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--

<b>Gastric Cancer</b>
-----------------------


Diagnosis and Staging	Restaging/Monitor Treatment Response
For staging and re-staging of confirmed gastric cancer, when there is a curative treatment intent. Note: <ul style="list-style-type: none"> <li>Baseline clinical staging FDG PET-CT evaluation is recommended in &gt;T1 suspected disease, particularly if nodal and/or metastatic disease is equivocal on initial CT chest+ abdomen + pelvis imaging.</li> <li>FDG PET-CT may be less informative in mucinous or diffuse/non-intestinal type of tumor.</li> </ul>	
To identify primary gastric tumor on patients who are eligible for radical treatment when findings on conventional imaging is inconclusive. Note: <ul style="list-style-type: none"> <li>FDG PET-CT may be considered in addition or replacing the CT for follow-up/surveillance of patients with p stage II/III or yp stage I-III (treated with neoadjuvant ± adjuvant chemotherapy), although CT chest +abdomen +pelvis with oral and IV contrast may be the preferred imaging method.</li> </ul>	<ul style="list-style-type: none"> <li>To assess suspected relapse or disease progression for candidates who are eligible for further chemotherapy or radiotherapy.</li> <li>To determine recurrent disease in gastric bed, near anastomoses or stumps.</li> <li>To assess response to treatment particularly in cases of renal insufficiency or allergy to CT contrast.</li> </ul>

<b>Gastrointestinal Stromal Tumor</b>
---------------------------------------


Diagnosis and Staging	Restaging/Monitor Treatment Response
Staging prior to treatment for patients who are likely to require systemic therapy.	Assess response to systemic therapy.
	To determine early treatment response (6-8 weeks) to imatinib.

<b>Colorectal Carcinoma</b>
-----------------------------

Diagnosis and Staging	Restaging/Monitor Treatment Response
<b>Colorectal (Apparent limited metastatic)</b> Staging/re-staging for patients with apparent limited metastatic disease (e.g., organ-restricted liver or lung metastases); or limited local recurrence, who are being considered for radical intent therapy.  <b>Note:</b> As chemotherapy may affect the sensitivity of the PET scan, it is strongly recommended to schedule PET at least 6 weeks after the last chemotherapy, if possible.	


 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--

<b>Colorectal (recurrent)</b> When recurrent disease is suspected (elevated and/or rising carcinoembryonic antigen (CEA) level(s) during follow-up after surgical resection, but standard imaging tests are negative or equivocal.	
Assessment, detection and staging of synchronous metastasis of colorectal cancer, when suitable for resection at presentation or patients with vague findings on other imaging (like pulmonary or liver lesions).	Restaging of patients with recurrence when considered for radical treatment and/or invasive targeted techniques.
Aides in the diagnosis when there is increase and persistent elevation of carcinoembryonic antigen (CEA) level when conventional imaging yields negative results.	Post-treatment evaluation of indeterminate pre-sacral masses.
	PET-CT follow up after liver metastasis ablation.
	Assessment of response to treatment for patients with rectal carcinoma post (chemo) radiotherapy with indeterminate findings on other imaging.
	Assessment of treatment response in metastatic colorectal carcinoma following targeted therapy (ablative techniques for liver or lung metastasis, selective internal radiotherapy for liver metastasis) when findings on other imaging are inconclusive.
	To monitor metabolic response among those with metastatic colorectal cancer who are being treated with oral multi-kinase and immune checkpoint inhibitors
	To detect recurrence in an individual with rising tumor markers and/or clinical suspicion of recurrence with normal or equivocal findings on other imaging.
<b>Anal carcinoma</b>	
<b>Diagnosis and Staging</b> Staging of T2-T4 anal tumor when suitable for radical treatment.	<b>Restaging/Monitor Treatment Response</b> For re-staging/re-assessment of those who were treated with radical chemo-radiotherapy.

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b>
---	--

**Table 13. Genitourinary Malignancy**

<b>Renal Cancer</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Assessment of metastatic renal or ureteric carcinoma in staging and restaging of extrarenal or extra-ureteric disease in selected cases with ambiguous imaging particularly when the disease is FDG-avid and for potential problem solving. <i>Note: 50% of renal cell carcinomas may not be FDG-avid and that the radiotracer is excreted into the urinary tract</i>	
	To monitor response to treatment if previously FDG-avid metastatic disease.
	To assess disease recurrence within the nephrectomy bed
<b>Bladder Cancer</b>	
<b>Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Staging in proven or newly diagnosed muscle invasive bladder cancer or high-risk non-muscle-invasive bladder cancer before radical treatment if there are indeterminate findings on CT or MRI, or a high-risk of metastatic disease (such as T3b disease).	Re-staging following treatment or in suspected extra-vesical recurrence (nodal or visceral).
Staging of patients with newly diagnosed muscle-invasive high grade urothelial carcinoma of the bladder who are being considered for curative intent treatment with either radical cystectomy or radiation-based bladder preservation therapy; TNM stage T2a-T4a, N0-3, M0	
<b>Germ Cell Tumors (recurrent/persistent disease)</b>	
Suspected of recurrent disease (elevated tumor marker(s) - (beta human chorionic gonadotrophin (HCG) and/or alpha fetoprotein) and standard imaging tests are negative	
Persistent disease is suspected (presence of a residual mass after primary treatment for seminoma) when curative surgical resection is being considered.	


 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

**Table 14. Testicular and Penile Malignancy**

<b>Testicular Cancer</b>	
<b>Diagnosis and Staging</b>	<b>Restaging/Monitor Treatment Response</b>
Primary staging of testicular germ cell tumors in selected cases when there is equivocal findings on conventional work-up,	Assessment of residual masses with metastatic seminoma 8 weeks post chemotherapy Note: <ul style="list-style-type: none"> <li><i>PE-CT should be performed at least eight weeks post chemotherapy since high NPV especially for masses &gt; 3 cm may result in false positives that can be secondary to inflammation and desmoplastic reaction after chemotherapy.</i></li> <li><i>Teratomas have variable, low or no FDG uptake, for non-seminomatous germ cell tumors, thus FDG PET is not reliable to distinguish between disease versus fibrosis or necrosis.</i></li> </ul>
	To assess recurrent disease in seminoma patients with elevated or rising tumor markers and equivocal or normal anatomical imaging.
<b>Penile Carcinoma</b>	
Staging of high-risk penile carcinoma	

**Table 15. Gynecological Malignancy**

<b>Cervical Cancer</b>
<b>Diagnosis, Staging, Restaging &amp; Assess Treatment Response</b>
Staging or restaging patients with vulval or uterine (cervix/endometrium) carcinoma who are being considered for exenteration surgery.
To detect tumor in selected patients with ovarian carcinoma who have rising CA125 levels and equivocal or negative imaging.
Staging of patients with locally advanced cervical cancer who are being considered for radical chemoradiotherapy, when: <ul style="list-style-type: none"> <li>CT/MR shows positive or indeterminate pelvic nodes (&gt;7mm and/or suspicious morphology); or</li> <li>CT/MR shows borderline or suspicious para-aortic; or</li> </ul>

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

CT/MR shows suspicious or indeterminate distant metastases (e.g., chest nodules)
Staging of high-risk endometrial cancer with inconclusive findings on conventional work-up.
<b>Gynecology (recurrent, prior to salvage therapy)</b>
Re-staging of patients with recurrent gynecologic malignancies who are being considered for radical salvage surgery (e.g., pelvic exenteration)

## B. Clinical Indication for Pediatrics: Oncology Application of PET-CT

PET-CT for pediatrics is medically necessary when the patient meets the criteria for the following:

### 1. Leukemia

- To diagnose suspected extra-medullary disease (EMD); or  
Note: 20%-40% of patients with acute myeloid leukemia have EMD at diagnosis associated with high relapse rates.
- FDG PET-CT to detect EMD, particularly in subclinical multifocal disease; the lack of definitive treatment options limits the clinical use of PET.<sup>17</sup>

### 2. Hodgkin's Lymphoma


- For baseline staging; or
- To assess response in the interim after two cycles of OEPA; or
- Assessment at the end of treatment; or
- Clinical suspicion of relapse, on a case-by-case basis

### 3. Non-Hodgkin's Lymphoma

- For baseline staging; or
- To assess response to treatment in selected cases; or
- When there is suspected relapse, on a case-by-case basis

### 4. Brain tumor

- FDG PET-CT
  - To improve diagnostic yield from biopsy & assess the histological grade: or
    - Glioblastomas and medulloblastomas show high grade FDG uptake
    - Brain stem gliomas have low-grade uptake
    - Ependymomas have low-grade uptake

 <p><b>KAISER PERMANENTE®</b> Mid-Atlantic States</p>	<p><b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b></p>
--	---

- ii. To improve tumor delineation when co-registered with MRI

#### **5. Neuroblastoma**

- a. FDG PET-CT in meta-iodobenzylguanidine (mIBG) negative neuroblastoma; or
- b. FDG PET-CT: higher sensitivity but lower specificity than mIBG: biopsy may be needed for soft tissue lesions; or
- c. Small volume bone marrow involvement may be missed with both FDG PET-CT and mIBG SPECT-CT: bone marrow biopsy needed; or
- d. FDG PET-CT may be a better predictor of progression free survival than mIBG; or
- e. <sup>123</sup>I-mIBG is the gold standard after chemotherapy (FDG PET-CT less sensitive and specific for bone/bone marrow disease); or
- f. mIBG positive neuroblastomas can become mIBG negative. There is a problem-solving role of FDG PET-CT in these cases.

#### **6. Wilms' tumor**

- a. Limited data on FDG PET-CT
  - May predict tumor viability after neoadjuvant chemotherapy
  - May detect more sites of disease at relapse versus MRI
- b. Currently, there may be a problem-solving role for restaging relapsed patients.

#### **7. Osteosarcoma**


- a. FDG PET/CT for staging apart from the lungs (superior accuracy for bone metastases); or
- b. Thin slice chest CT in full inspiration required for lung metastases; or
- c. FDG PET-CT in relapse to define the extent of disease especially in peri-prosthetic recurrence; or
- d. FDG PET-CT not recommended for the following:
  - 1) End-of-treatment since assessment is based on histology.
  - 2) Interim FDG PET-CT not proven as there is no alternative chemotherapy that can alter the outcome in poorly responding osteosarcomas.

#### **8. Ewing's Sarcoma**

- a. Staging: FDG PET-CT more sensitive to detect metastatic disease, apart from the lungs; or
- b. The use of PET-CT in predicting response to chemotherapy is not yet proven; further research is needed.

#### **9. Soft tissue sarcoma**



 <p><b>KAISER PERMANENTE®</b> Mid-Atlantic States</p>	<p><b>Positron Emission Tomography Computed Tomography (PET- CT) Oncology-Use Medical Coverage Policy</b></p>
--	---

- a. Routine FDG PET-CT at staging (lymph nodes, bone marrow and cortical bone) is recommended.

**10. Malignant peripheral nerve sheath tumors (MPNST)**

- a. Malignant transformation in previously benign plexiform neurofibromata in neurofibromatosis type 1 patients; or
- b. FDG PET-CT for earlier diagnosis and to predict malignant change in asymptomatic patients or children who have difficulty expressing symptomatology verbally.  
Limitation: When malignant transformation based on clinical symptoms is suspected, strong reliance on histological sampling is recommended.

**11. Langerhans cell histiocytosis (LCH)**

- a. Single or several lesions (involving a single or multiple body systems); or
- b. Prognosis is determined by organ involvement and treatment response; or
- c. FDG PET-CT appears to be highly sensitive for staging and response assessment with a low false-positive rate.

**12. Germ cell tumor**

- a. As a problem-solving tool for staging, biopsy guidance, assessment of residual metabolic activity and recurrence detection.

**13. Hepatoblastoma**

- a. FDG PET-CT has a limited role in the detection of suspected tumor relapse with negative conventional imaging and rising blood serum alpha-fetoprotein.

## References

- Centers for Medicare and Medicaid Services. National Coverage Determination (NCD) for Positron Emission Tomography (FDG) for Oncologic Conditions (220.6.17). accessed 03/04/25  
<https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=331>
- Centers for Medicare and Medicaid Services. CMS Coverage Transmittal Number 168. Fluorodeoxyglucose (FDG) Positron Emission Tomography (PET) for Solid Tumors. dated May 28, 2014  
<https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/Downloads/R168NCD.pdf>
- Centers for Medicare and Medicaid Services. National Coverage Determination (NCD) for Positron Emission Tomography (FDG) for (NaF-18) to Identify Bone Metastasis of Cancer (22.6.19). CMS Coverage Transmittal Number 11158 - Positron Emission Tomography (NaF-18) to Identify Bone Metastasis of Cancer  
<https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=336&ncdver=2>
- Barakat, A., Yacoub, B., Homs, M. E., Saad Aldine, A., El Hajj, A., & Haidar, M. B. (2020). Role of Early PET/CT Imaging with 68Ga-PSMA in Staging and Restaging of Prostate Cancer. *Scientific reports*, 10(1), 2705. <https://doi.org/10.1038/s41598-020-59296-6>
- Pienta, K. J., Gorin, M. A., Rowe, S. P., Carroll, P. R., Pouliot, F., Probst, S., Saperstein, L., Preston, M. A., Alva, A. S., Patnaik, A., Durack, J. C., Stambler, N., Lin, T., Jensen, J., Wong, V., Siegel, B. A., & Morris, M. J. (2021). A Phase 2/3 Prospective Multicenter Study of the Diagnostic Accuracy of Prostate Specific Membrane Antigen PET/CT with <sup>18</sup>F-DCFPyL in Prostate Cancer Patients (OSPReY). *The Journal of urology*, 206(1), 52–61. <https://doi.org/10.1097/JU.0000000000001698>
- Oprea-Lager, D. E., Gontier, E., García-Cañamaque, L., Gauthé, M., Olivier, P., Mitjavila, M., Tamayo, P., Robin, P., García Vicente, A. M., Bouyeure, A. C., Bailliez, A., Rodríguez-Fernández, A., Mahmoud, S. B., Vallejo-Casas, J. A., Maksud, P., Merlin, C., Blanc-Durand, P., Drouet, C., Tissot, H., Vieras, I., ... Rousseau, C. (2023). [<sup>18</sup>F]DCFPyL PET/CT versus [<sup>18</sup>F]fluoromethylcholine PET/CT in Biochemical Recurrence of Prostate Cancer (PYTHON): a prospective, open label, cross-over, comparative study. *European journal of nuclear medicine and molecular imaging*, 50(11), 3439–3451. <https://doi.org/10.1007/s00259-023-06301-5>
- Zhang, L. L., Li, W. C., Xu, Z., Jiang, N., Zang, S. M., Xu, L. W., Huang, W. B., Wang, F., & Sun, H. B. (2021). <sup>68</sup>Ga-PSMA PET/CT targeted biopsy for the diagnosis of clinically significant prostate cancer compared with transrectal ultrasound guided biopsy: a prospective randomized single-centre study. *European journal of nuclear medicine and molecular imaging*, 48(2), 483–492. <https://doi.org/10.1007/s00259-020-04863-2>
- Danielsen, M., Kjaer, A., Wu, M., Martineau, L., Nosrati, M., Leong, S. P., Sagebiel, R. W., Miller, J. R., III, & Kashani-Sabet, M. (2016). Prediction of positron emission tomography/computed tomography (PET/CT) positivity in patients with high-risk primary melanoma. *American journal of nuclear medicine and molecular imaging*, 6(5), 277–285.
- Rodriguez Rivera, A. M., Alabbas, H., Ramjaun, A., & Meguerditchian, A. N. (2014). Value of positron emission tomography scan in stage III cutaneous melanoma: a systematic review and meta-analysis. *Surgical oncology*, 23(1), 11–16. <https://doi.org/10.1016/j.suronc.2014.01.002>



KAISER PERMANENTE®

Mid-Atlantic States

**Positron Emission Tomography  
Computed Tomography (PET- CT)  
Oncology-Use  
Medical Coverage Policy**

10. Wu, X., Senanayake, R., Goodchild, E., Bashari, W. A., Salsbury, J., Cabrera, C. P., Argentesi, G., O'Toole, S. M., Matson, M., Koo, B., Parvanta, L., Hilliard, N., Kosmoliaptsis, V., Marker, A., Berney, D. M., Tan, W., Foo, R., Mein, C. A., Wozniak, E., Savage, E., ... Brown, M. J. (2023). [<sup>11</sup>C]metomidate PET-CT versus adrenal vein sampling for diagnosing surgically curable primary aldosteronism: a prospective, within-patient trial. *Nature medicine*, 29(1), 190–202. <https://doi.org/10.1038/s41591-022-02114-5>
11. Gennari, A., Brain, E., De Censi, A., Nanni, O., Wuerstlein, R., Frassoldati, A., Cortes, J., Rossi, V., Palleschi, M., Alberini, J. L., Matteucci, F., Piccardo, A., Sacchetti, G., Ilhan, H., D'Avanzo, F., Ruffilli, B., Nardin, S., Monti, M., Puntoni, M., Fontana, V., ... ET-FES Collaborative Group (2024). Early prediction of endocrine responsiveness in ER+/HER2-negative metastatic breast cancer (MBC): pilot study with <sup>18</sup>F-fluoroestradiol (<sup>18</sup>F-FES) CT/PET. *Annals of oncology : official journal of the European Society for Medical Oncology*, 35(6), 549–558. <https://doi.org/10.1016/j.annonc.2024.02.007>
12. Samim, A., Blom, T., Poot, A. J., Windhorst, A. D., Fiocco, M., Tolboom, N., Braat, A. J. A. T., Viol, S. L. M., van Rooij, R., van Noesel, M. M., Lam, M. G. E. H., Tytgat, G. A. M., & de Keizer, B. (2023). [<sup>18</sup>F]mFBG PET-CT for detection and localisation of neuroblastoma: a prospective pilot study. *European journal of nuclear medicine and molecular imaging*, 50(4), 1146–1157. <https://doi.org/10.1007/s00259-022-06063-6>
13. Quak, E., Lasne-Cardon, A., Cavarec, M., Lireux, B., Bastit, V., Roudaut, N., Salaun, P. Y., Keromnes, N., Potard, G., Vaduva, P., Esvant, A., Jegoux, F., de Crouy-Chanel, O., Devillers, A., Guery, C., Lasnon, C., Ciappuccini, R., Legrand, B., Estienne, A., Christy, F., ... Clarisse, B. (2024). F18-Choline PET/CT or MIBI SPECT/CT in the Surgical Management of Primary Hyperparathyroidism: A Diagnostic Randomized Clinical Trial. *JAMA otolaryngology-- head & neck surgery*, 150(8), 658–665. <https://doi.org/10.1001/jamaoto.2024.1421>
14. de Fonseka, D., Arnold, D. T., Smartt, H. J. M., Culliford, L., Staddon, L., Tucker, E., Morley, A., Zahan-Evans, N., Bibby, A. C., Lynch, G., Mishra, E., Khan, S., Haris, M., Steer, H., Lewis, L., Ionescu, A., Harvey, J., Blyth, K., Rahman, N. M., Edey, A. E., ... Maskell, N. A. (2024). PET-CT-guided versus CT-guided biopsy in suspected malignant pleural thickening: a randomised trial. *The European respiratory journal*, 63(2), 2301295. <https://doi.org/10.1183/13993003.01295-2023>
15. Brose, A., Michalski, K., Ruf, J., Tosch, M., Eschmann, S. M., Schreckenberger, M., König, J., Nestle, U., & Miederer, M. (2023). PET/CT reading for relapse in non-small cell lung cancer after chemoradiotherapy in the PET-Plan trial cohort. *Cancer imaging : the official publication of the International Cancer Imaging Society*, 23(1), 45. <https://doi.org/10.1186/s40644-023-00567-6>
16. Mona, C. E., Benz, M. R., Hikmat, F., Grogan, T. R., Lueckerath, K., Razmaria, A., Riahi, R., Slavik, R., Girgis, M. D., Carlucci, G., Kelly, K. A., French, S. W., Czernin, J., Dawson, D. W., & Calais, J. (2022). Correlation of <sup>68</sup>Ga-FAPi-46 PET Biodistribution with FAP Expression by Immunohistochemistry in Patients with Solid Cancers: Interim Analysis of a Prospective Translational Exploratory Study. *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*, 63(7), 1021–1026. <https://doi.org/10.2967/jnumed.121.262426>
17. Wegen, S., van Heek, L., Linde, P., Claus, K., Akuamoa-Boateng, D., Baues, C., Sharma, S. J., Schomäcker, K., Fischer, T., Roth, K. S., Klußmann, J. P., Marnitz, S., Drzezga, A., & Kobe, C. (2022). Head-to-Head Comparison of [<sup>68</sup> Ga]Ga-FAPi-46-PET/CT and [<sup>18</sup>F]F-FDG-PET/CT for Radiotherapy



KAISER PERMANENTE®


Mid-Atlantic States

**Positron Emission Tomography  
Computed Tomography (PET- CT)  
Oncology-Use  
Medical Coverage Policy**

Planning in Head and Neck Cancer. *Molecular imaging and biology*, 24(6), 986–994.

<https://doi.org/10.1007/s11307-022-01749-7>

18. de Koster, E. J., de Geus-Oei, L. F., Brouwers, A. H., van Dam, E. W. C. M., Dijkhorst-Oei, L. T., van Engen-van Grunsven, A. C. H., van den Hout, W. B., Klooker, T. K., Netea-Maier, R. T., Snel, M., Oyen, W. J. G., Vriens, D., & EffECTS trial study group (2022). [<sup>18</sup>F]FDG-PET/CT to prevent futile surgery in indeterminate thyroid nodules: a blinded, randomised controlled multicentre trial. *European journal of nuclear medicine and molecular imaging*, 49(6), 1970–1984. <https://doi.org/10.1007/s00259-021-05627-2>
19. Chen, T. M., Chen, W. M., Chen, M., Shia, B. C., & Wu, S. Y. (2023). Pre-CCRT 18-fluorodeoxyglucose PET-CT improves survival in patients with advanced stages p16-negative oropharyngeal squamous cell carcinoma via accurate radiation treatment planning. *Journal of otolaryngology - head & neck surgery = Le Journal d'oto-rhino-laryngologie et de chirurgie cervico-faciale*, 52(1), 14. <https://doi.org/10.1186/s40463-023-00623-y>
20. Shuch, B., Pantuck, A. J., Bernhard, J. C., Morris, M. A., Master, V., Scott, A. M., van Praet, C., Bailly, C., Önal, B., Aksoy, T., Merks, R., Schuster, D. M., Lee, S. T., Pandit-Taskar, N., Fan, A. C., Allman, P., Schmidt, K., Tauchmanova, L., Wheatcroft, M., Behrenbruch, C., ... Mulders, P. (2024). [<sup>89</sup>Zr]Zr-girentuximab for PET-CT imaging of clear-cell renal cell carcinoma: a prospective, open-label, multicentre, phase 3 trial. *The Lancet. Oncology*, 25(10), 1277–1287. [https://doi.org/10.1016/S1470-2045\(24\)00402-9](https://doi.org/10.1016/S1470-2045(24)00402-9)
21. MCG 29<sup>th</sup> edition. Copyright 2025. Myocardial Positron Emission Tomography (PET) and PET-CT. ACG: A-0097 (AC). Accessed 04/07/2025
22. Martinez, A., Lecuru, F., Bizzarri, N., Chargari, C., Ducassou, A., Fagotti, A., Fanfani, F., Scambia, G., Cibula, D., Díaz-Feijoo, B., Gil Moreno, A., Angeles, M. A., Muallem, M. Z., Kohler, C., Luyckx, M., Kridelka, F., Rychlik, A., Gerestein, K. G., Heinzelmann, V., Ramirez, P. T., ... PAROLA Study group (2023). PARa-aOrtic LymphAdenectomy in locally advanced cervical cancer (PAROLA trial): a GINECO, ENGOT, and GCIG study. *International journal of gynecological cancer : official journal of the International Gynecological Cancer Society*, 33(2), 293–298 <https://doi.org/10.1136/ijgc-2022-004223>

 <b>KAISER PERMANENTE®</b> Mid-Atlantic States	<b>Positron Emission Tomography  Computed Tomography (PET- CT)  Oncology-Use  Medical Coverage Policy</b>
---	---

### Approval History

Effective June 01, 2016, state filing is no longer required per Maryland House Bill [HB 798](#) – Health Insurance – Reporting

<b>Date approved by RUMC</b>	<b>Date of Implementation</b>
06/18/2025	06/18/2025

\*The Regional Utilization Management Committee received delegated authority in 2011 to review and approve designated Utilization Management and Medical Coverage Policies by the Regional Quality Improvement Committee.

Note: Kaiser Permanente Mid-Atlantic States (KPMAS) include referral and authorization criteria to support primary care and specialty care practitioners, as appropriate, in caring for members with selected conditions. Medical Coverage Policies are not intended or designed as a substitute for the reasonable exercise of independent clinical judgment by a practitioner in any particular set of circumstances for an individual member.

©2025, Kaiser Foundation Health Plan of the Mid-Atlantic States, Inc.  
©2025, Mid-Atlantic Permanente Medical Group, P.C.