

Clinical Appropriateness Guidelines: Advanced Imaging

Appropriate Use Criteria: Positron Emission Testing, Other
PET Applications, including Oncologic Tumor Imaging

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Proprietary

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Table of Contents



- Description and Application of the Guidelines3**
- Administrative Guidelines4**
 - Ordering of Multiple Studies4
 - Pre-test Requirements5
- PET Imaging6**
 - PET Applications including Oncologic Tumor Imaging6

Description and Application of the Guidelines



AIM's Clinical Appropriateness Guidelines (hereinafter "AIM's Clinical Appropriateness Guidelines" or the "Guidelines") are designed to assist providers in making the most appropriate treatment decision for a specific clinical condition for an individual. As used by AIM, the Guidelines establish objective and evidence-based, where possible, criteria for medical necessity determinations. In the process, multiple functions are accomplished:

- To establish criteria for when services are medically necessary
- To assist the practitioner as an educational tool
- To encourage standardization of medical practice patterns
- To curtail the performance of inappropriate and/or duplicate services
- To advocate for patient safety concerns
- To enhance the quality of healthcare
- To promote the most efficient and cost-effective use of services

AIM's guideline development process complies with applicable accreditation standards, including the requirement that the Guidelines be developed with involvement from appropriate providers with current clinical expertise relevant to the Guidelines under review and be based on the most up to date clinical principles and best practices. Relevant citations are included in the "References" section attached to each Guideline. AIM reviews all of its Guidelines at least annually.

AIM makes its Guidelines publicly available on its website twenty-four hours a day, seven days a week. Copies of AIM's Clinical Appropriateness Guidelines are also available upon oral or written request. Although the Guidelines are publicly-available, AIM considers the Guidelines to be important, proprietary information of AIM, which cannot be sold, assigned, leased, licensed, reproduced or distributed without the written consent of AIM.

AIM applies objective and evidence-based criteria and takes individual circumstances and the local delivery system into account when determining the medical appropriateness of health care services. The AIM Guidelines are just guidelines for the provision of specialty health services. These criteria are designed to guide both providers and reviewers to the most appropriate services based on a patient's unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice should be used when applying the Guidelines. Guideline determinations are made based on the information provided at the time of the request. It is expected that medical necessity decisions may change as new information is provided or based on unique aspects of the patient's condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient and for justifying and demonstrating the existence of medical necessity for the requested service. The Guidelines are not a substitute for the experience and judgment of a physician or other health care professionals. Any clinician seeking to apply or consult the Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment.

The Guidelines do not address coverage, benefit or other plan specific issues. If requested by a health plan, AIM will review requests based on health plan medical policy/guidelines in lieu of AIM's Guidelines.

The Guidelines may also be used by the health plan or by AIM for purposes of provider education, or to review the medical necessity of services by any provider who has been notified of the need for medical necessity review, due to billing practices or claims that are not consistent with other providers in terms of frequency or some other manner.

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Administrative Guideline: Ordering of Multiple Studies



Requests for multiple imaging studies to evaluate a suspected or identified condition and requests for repeated imaging of the same anatomic area are subject to additional review to avoid unnecessary or inappropriate imaging.

Simultaneous Ordering of Multiple Studies

In many situations, ordering multiple imaging studies at the same time is not clinically appropriate because:

- Current literature and/or standards of medical practice support that one of the requested imaging studies is more appropriate in the clinical situation presented; or
- One of the imaging studies requested is more likely to improve patient outcomes based on current literature and/or standards of medical practice; or
- Appropriateness of additional imaging is dependent on the results of the lead study.

When multiple imaging studies are ordered, the request will often require a peer-to-peer conversation to understand the individual circumstances that support the medical necessity of performing all imaging studies simultaneously.

Examples of multiple imaging studies that may require a peer-to-peer conversation include:

- CT brain and CT sinus for headache
- MRI brain and MRA brain for headache
- MRI cervical spine and MRI shoulder for pain indications
- MRI lumbar spine and MRI hip for pain indications
- MRI or CT of multiple spine levels for pain or radicular indications
- MRI foot and MRI ankle for pain indications
- Bilateral exams, particularly comparison studies

There are certain clinical scenarios where simultaneous ordering of multiple imaging studies is consistent with current literature and/or standards of medical practice. These include:

- Oncologic imaging – Considerations include the type of malignancy and the point along the care continuum at which imaging is requested
- Conditions which span multiple anatomic regions – Examples include certain gastrointestinal indications or congenital spinal anomalies

Repeated Imaging

In general, repeated imaging of the same anatomic area should be limited to evaluation following an intervention, or when there is a change in clinical status such that imaging is required to determine next steps in management. At times, repeated imaging done with different techniques or contrast regimens may be necessary to clarify a finding seen on the original study.

Repeated imaging of the same anatomic area (with same or similar technology) may be subject to additional review in the following scenarios:

- Repeated imaging at the same facility due to motion artifact or other technical issues
- Repeated imaging requested at a different facility due to provider preference or quality concerns
- Repeated imaging of the same anatomic area (MRI or CT) based on persistent symptoms with no clinical change, treatment, or intervention since the previous study
- Repeated imaging of the same anatomical area by different providers for the same member over a short period of time

Administrative Guideline: Pre-Test Requirements



Critical to any finding of clinical appropriateness under the guidelines for specific imaging exams is a determination that the following are true with respect to the imaging request:

- A clinical evaluation has been performed prior to the imaging request (which should include a complete history and physical exam and review of results from relevant laboratory studies, prior imaging and supplementary testing) to identify suspected or established diseases or conditions.
- **For suspected diseases or conditions:**
 - Based on the clinical evaluation, there is a reasonable likelihood of disease prior to imaging; and
 - Current literature and standards of medical practice support that the requested imaging study is the most appropriate method of narrowing the differential diagnosis generated through the clinical evaluation and can be reasonably expected to lead to a change in management of the patient; and
 - The imaging requested is reasonably expected to improve patient outcomes based on current literature and standards of medical practice.
- **For established diseases or conditions:**
 - Advanced imaging is needed to determine whether the extent or nature of the disease or condition has changed; and
 - Current literature and standards of medical practice support that the requested imaging study is the most appropriate method of determining this and can be reasonably expected to lead to a change in management of the patient; and
 - The imaging requested is reasonably expected to improve patient outcomes based on current literature and standards of medical practice.
- If these elements are not established with respect to a given request, the determination of appropriateness will most likely require a peer-to-peer conversation to understand the individual and unique facts that would supersede the pre-test requirements set forth above. During the peer-to-peer conversation, factors such as patient acuity and setting of service may also be taken into account.

Positron Emission Tomography (PET)

PET Applications including Oncologic Tumor Imaging



CPT Codes

Dedicated PET Imaging:

- 78811..... PET imaging, limited area
- 78812..... PET imaging, skull to mid-thigh
- 78813..... PET imaging, whole body

PET/CT Imaging:

- 78814..... PET imaging, with concurrently acquired CT for attenuation correction and anatomic localization; limited area
- 78815..... PET imaging, with concurrently acquired CT for attenuation correction and anatomic localization; skull base to mid-thigh
- 78816..... PET imaging, with concurrently acquired CT for attenuation correction and anatomic localization; whole body

Commonly Used Radiopharmaceutical/Scanner

- 2-(fluorine-18) fluoro-2-deoxy-d-glucose (FDG), performed on a dedicated PET or integrated (hybrid) PET/CT scanner
- Radiopharmaceuticals other than 2-(fluorine-18) fluoro-2-deoxy-d-glucose (FDG) are still under active investigation.

Technology Considerations

The use of PET is generally limited to clinical situations in which tissue confirmation of malignancy has been established and standard imaging has not provided sufficient information to guide treatment decisions.

Standard imaging usually consists of CT or MRI, but may include xray, bone scan or ultrasound. In the majority of situations where residual or recurrent disease is of concern, biopsy remains the most reliable method of confirmation. In addition, timing of PET with regard to radiation treatment and other forms of therapy is critical, as the inflammatory response may lead to false positive findings.

Based on these considerations and the considerable nuance that exists across tumor types, peer-to-peer discussions will often be necessary to determine appropriateness of PET imaging.

Routine surveillance with PET or other imaging studies in asymptomatic patients has not been shown to improve survival or impact the ability to palliate recurrent disease, and is therefore not recommended.

Common Diagnostic Indications

Bladder, renal pelvis and ureter

- Initial treatment strategy
 - Evaluation of stage II or stage III bladder cancer prior to surgery
- **Note:** *PET is not indicated in bladder tumors which have not invaded the muscle (stage < cT2).*
- Subsequent treatment strategy
 - Evaluation of objective signs or symptoms of disease when CT or MRI has not clearly demonstrated recurrence or progression

Bone/cartilage and connective/other soft tissue

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Common Diagnostic Indications

Brain and spinal cord – (applies to full body PET) (If metabolic PET for Brain imaging is desired, please direct to PET – Brain Imaging, CPT code 78608)

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Note: *Standard PET (body) imaging is sometimes used as staging, particularly for CNS lymphoma, or metastatic disease detected in the central nervous system. Primary brain tumors traditionally are imaged utilizing metabolic Brain FDG-PET scanning.*

Breast cancer, invasive (male and female)

- Initial treatment strategy when a diagnosis of invasive breast cancer has been established and **any of the following** apply:
 - Locally advanced disease (stage IIIA-IIIC) has been established and standard imaging does not clearly demonstrate metastatic disease
 - Symptom-directed staging has been performed and is equivocal or suspicious for metastatic disease
 - Standard imaging studies are equivocal or non-diagnostic for the extent of known metastatic disease
- Subsequent treatment strategy
 - Detection of recurrent or progressive disease, when standard imaging is equivocal or non-diagnostic
 - Suspected worsening of disease based on objective signs or symptoms (such as rising tumor markers), when standard imaging has been performed and does not clearly identify site of recurrence or progression

Note: *Standard imaging includes CT or MRI and bone scan, and may also include ultrasound when liver involvement is suspected. In the setting of bone-only metastatic disease, evaluation for progression or regression may be best imaged by PET.*

Cervix

- Initial treatment strategy
 - After definitive diagnosis of cervical cancer has been made
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Common Diagnostic Indications

Colorectal cancer

- Initial treatment strategy—Detection of metastatic disease when **all of the following** are true:
 - Standard imaging has been performed (CT or ultrasound) and suggests resectable metastatic disease.
 - Lesion(s) is/are greater than 1 cm in diameter.
 - Lesion(s) is/are in a location not amenable to biopsy, or biopsy is considered high risk.
 - Confirmation of metastatic disease will impact the decision to proceed with curative surgery

Note: *A negative standard workup is considered sufficient for staging. In patients who cannot undergo contrast-enhanced CT due to contrast allergy or renal disease, PET may be utilized if the patient has potentially curable disease.*

- Radiation planning—Rectal cancer only
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - CT is equivocal for metastatic disease and lesion(s) is/are greater than 1 cm in diameter.
 - CT demonstrates potentially surgically curable recurrence.
 - CT does not demonstrate a focus of recurrence but CEA level is rising.
 - Signs or symptoms are suggestive of recurrence and CT with contrast is contraindicated.

Note: *PET is not appropriate to assess response to chemotherapy due to an unacceptably high rate of false positive and false negative studies.*

Digestive system, including small intestine, liver, biliary, peritoneum, GI stromal tumors (GIST), and anal cancers—excludes colorectal, esophageal, gastric and gastroesophageal junction cancers, and pancreatic adenocarcinoma

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Note: *Alternative imaging modalities should be considered in those tumor types for which falsely negative PET or PET/CT results are commonly reported, including mucinous neoplasia, islet cell tumors, carcinoid tumors, other well-differentiated neuroendocrine tumors, and well-differentiated hepatocellular tumors. PET should be used with caution.*

Endocrine non-thyroid (includes pituitary and adrenal)

- Initial treatment
- Subsequent treatment
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Common Diagnostic Indications

Esophageal and gastroesophageal junction cancers

- Initial treatment strategy
 - Standard imaging has been performed and has not demonstrated metastatic disease
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Assessment of response to chemoradiation, (as definitive treatment or prior to surgery) when performed at least 5 weeks after completion of therapy; **OR**,
 - Evaluation of suspected recurrence based on signs or symptoms, when standard modalities are equivocal for recurrent disease

Gastric cancer

- Initial treatment strategy—Detection of metastatic disease in tumors initially staged **1B or higher** when **all of the following** are true:
 - Standard imaging has been performed and has not clearly demonstrated metastatic disease.
 - Patient is a candidate for curative surgery.
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - To determine resectability of residual disease following completion of primary (neoadjuvant) treatment, when follow-up evaluation with standard modalities does not demonstrate metastatic disease
 - Evaluation of suspected recurrence based on signs or symptoms, when standard modalities are equivocal for recurrent disease

Note: Standard evaluation includes endoscopic ultrasound and contrast-enhanced CT scan.

Head and neck, including lip, oral cavity, pharynx, larynx, nasal cavity, ear, sinuses, eye, or occult head and neck primary

- Initial treatment strategy
 - Evaluation of Stage III and IV cancers (tumors greater than 4 cm in size, or any evidence of regional node involvement) of the oral cavity, oropharynx, hypopharynx, nasopharynx, larynx and sinus
 - Following biopsy suggestive of a head and neck primary tumor (squamous cell cancer, adenocarcinoma, or anaplastic undifferentiated epithelial tumor) when CT or MRI evaluation of the neck has not detected a primary site of tumor
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Evaluation of disease following clinical response to treatment, no sooner than 12 weeks after completion of therapy
 - Evaluation of suspected recurrence based on signs or symptoms, when CT or MRI is equivocal or non-diagnostic for recurrent disease
 - Follow up of an equivocal post-treatment PET scan, no sooner than 4 weeks after the study, to determine need for further intervention such as neck dissection

Note: PET is not generally indicated for evaluation of lip and salivary gland cancers, regardless of stage.

Common Diagnostic Indications

Kidney cancer

- Initial treatment strategy
 - Evaluation of the extent of disease when curative resection of primary tumor or limited metastatic disease is planned, and standard imaging is equivocal for additional sites of disease.
- Subsequent treatment strategy—Evaluation of suspected recurrence when **all of the following** are true:
 - Standard imaging is equivocal for recurrent disease.
 - Biopsy cannot be performed.
 - Tumor has been shown to be PET avid (if a prior PET scan has been performed).

Note: *Bone scan and brain MRI should be performed for clinical suspicion of metastatic disease in renal cell carcinoma, as false negative PET results are commonly reported for this tumor type.*

Lung cancer

Pulmonary nodule

- Evaluation of a solitary pulmonary nodule when **all of the following** features are present:
 - Nodule is well-demarcated, solid or part solid, and lacks a benign calcification pattern.
 - Size is greater than 8 mm but less than 3 cm in greatest diameter
 - Nodule is surrounded by aerated lung parenchyma
 - There is no associated adenopathy, atelectasis or pleural effusion

Non-small cell lung cancer

- Initial treatment strategy
 - Diagnosis in patients with a strong clinical or radiographic suspicion of non-small cell lung cancer
 - Evaluation of the extent of disease following biopsy confirmation of non-small cell lung cancer
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Evaluation following induction or neoadjuvant therapy to determine eligibility for resection
 - Restaging following completion of adjuvant therapy
 - Evaluation of signs or symptoms of disease when CT or MRI has not clearly demonstrated recurrence or progression
 - Differentiation of tumor from benign conditions (atelectasis, consolidation, or radiation fibrosis) when CT clearly delineates the abnormal findings

Note: *Areas previously treated with radiation therapy can remain FDG avid for up to 2 years.*

Small cell lung cancer

- Initial treatment strategy
 - Prior to definitive therapy when standard imaging suggests limited stage disease
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Evaluation of suspected worsening of disease when standard imaging is equivocal for recurrence or progression

Common Diagnostic Indications

Lymphoma

Suspected lymphoma

- Initial evaluation of suspected lymphoma when lymph nodes are not amenable to biopsy

Note: *PET scan prior to histologic determination is not routinely recommended, as PET-avid lymphadenopathy can result from both benign and other malignant processes.*

Chronic lymphocytic leukemia (CLL) or Small lymphocytic lymphoma (SLL)

- Suspicion of Richter's transformation when PET is utilized to direct biopsy

Note: *Suspicion of Richter's transformation is most commonly based on a presentation of rapidly enlarging lymph nodes, onset of B symptoms, hepatosplenomegaly, and elevated serum lactate dehydrogenase (LDH) levels.*

Hodgkin's lymphoma

- Initial treatment strategy (often performed as an adjunct to CT chest/abdomen/pelvis)
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Evaluation of response following 2–4 cycles of treatment
 - Post-treatment evaluation
 - Evaluation of suspected recurrence or progression of disease based on standard imaging or objective signs/symptoms

Note: *For post-treatment evaluation, PET should not be performed sooner than 3 weeks following completion of all cycles of chemotherapy, or sooner than 12 weeks following completion of radiation therapy.*

Low grade/indolent non-Hodgkin's lymphoma or lymphoproliferative disorders (other than CLL/SLL)

- Initial treatment strategy
 - Evaluation of suspected transformation to a more aggressive lymphoma based on clinical signs or symptoms
 - Prior to initiation of therapy
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Post-treatment response evaluation, when initial PET scan has demonstrated FDG uptake
 - Evaluation of suspected recurrence or progression of disease based on standard imaging, when there is an indication to resume systemic treatment
 - Evaluation of suspected transformation to a more aggressive lymphoma based on clinical signs or symptoms

Note: *For post-treatment evaluation, PET should not be performed sooner than 3 weeks following completion of all cycles of chemotherapy, or sooner than 12 weeks following completion of radiation therapy.*

Intermediate or High grade (aggressive) non-Hodgkin's lymphoma and other subtypes

- Initial treatment strategy (often performed as an adjunct to CT chest/abdomen/pelvis)
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Evaluation of response following 2–4 cycles of treatment of stage III and IV disease, when standard imaging has not clearly demonstrated progression or regression of disease
 - Post-treatment evaluation
 - Evaluation of suspected recurrence or progression of disease based on standard imaging or objective signs/symptoms

Common Diagnostic Indications

Myeloma

- Initial treatment strategy
 - Differentiation of smoldering myeloma from active myeloma when skeletal survey and/or whole body MRI is negative for bone involvement
- Subsequent treatment strategy
 - When routine evaluation with laboratory findings or bone survey suggests recurrence or progression of disease

Note: Routine follow-up evaluation includes quantitative immunoglobulins and M protein (serum and urine), routine CBC, kidney function, and calcium levels, and bone surveys. Additional evaluation may also include bone marrow aspirate and biopsy, serum free light chain assays, MRI, and flow cytometry.

Neuroendocrine tumor, particularly poorly differentiated disease

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Note: Alternative imaging modalities, such as octreotide scans, should be considered in those tumor types for which falsely negative PET or PET/CT results are commonly reported, including well-differentiated neuroendocrine tumors. PET should be used with caution.

Other cancers not listed

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Ovarian cancer (epithelial)

- Initial treatment strategy
 - Evaluation of indeterminate lesions detected by other imaging modalities, including ultrasound and CT or MRI, when additional information is required to guide management
- Subsequent treatment strategy
 - Evaluation of objective evidence of recurrent disease (such as rising tumor markers or increasing ascites) when CT or MRI does not clearly demonstrate recurrence or progression.

Common Diagnostic Indications

Pancreatic adenocarcinoma

- Initial treatment strategy—Detection of extra-pancreatic disease in patients who are candidates for resection when **all of the following** are true:
 - Dedicated, high quality imaging of the pancreas has been performed (see Note below)
 - Extra-pancreatic disease has not been clearly identified
 - **Any of the following** high-risk features are present
 - CA 19-9 level greater than 100 U/ml
 - Primary tumor greater than 2 cm in size
 - Enlarged regional nodes
 - Tumor is considered borderline resectable
- Radiation planning
 - Prior to initiation of radiation therapy

Note: *Standard, high quality dedicated imaging evaluation of the pancreas includes a dedicated pancreatic protocol CT scan (multi-detector computed tomography angiography using a dual-phase pancreatic protocol, with images obtained in the pancreatic and portal venous phase of contrast enhancement) or MRI if CT is contraindicated. MRI may also be used to clarify CT-indeterminate liver lesions or suspected pancreatic tumors not visible on CT.*

Paraneoplastic syndrome including neurologic syndrome

- PET or PET/CT is indicated for initial evaluation of individuals with paraneoplastic syndrome

Prostate adenocarcinoma

Not medically necessary for any indication

Note: *FDG-PET/CT is not recommended for routine use for prostate cancer management because data remain insufficient. Furthermore, further study is needed to determine the best use of choline PET/CT in men with prostate cancer.*

Skin, including:

Melanoma

- Initial treatment strategy—Evaluation for metastatic disease when **any of the following** are true:
 - Regional lymph node involvement has been demonstrated and standard imaging studies do not clearly demonstrate metastatic disease.
 - Metastatic disease is suspected based on signs or symptoms, and standard imaging demonstrates an abnormal finding that is suspicious for metastatic disease.
 - Standard imaging studies are equivocal or non-diagnostic for the extent of known metastatic disease
- Subsequent treatment strategy
 - Evaluation of objective signs or symptoms of metastatic disease when CT or MRI has not clearly demonstrated recurrence or progression

Note: *An isolated finding of a new skin lesion is not sufficient evidence of systemic recurrence.*

Common Diagnostic Indications

Mucosal Melanoma

- Initial treatment strategy
 - Detection of metastatic disease
- Radiation planning
 - Prior to initiation of radiation therapy
- Subsequent treatment strategy
 - Evaluation of disease following clinical response to treatment, no sooner than 12 weeks after completion of therapy
 - Evaluation of signs or symptoms of metastatic disease when CT or MRI has not clearly demonstrated recurrence or progression

Note: *An isolated finding of a new mucosal lesion is not sufficient evidence of systemic recurrence.*

Non-melanoma skin (includes basal cell, squamous cell, and Merkel cell)

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Kaposi's sarcoma

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Thorax, other than lung cancer, including pleural malignancies, cancers of the thymus, heart, and mediastinum

- Initial treatment strategy
 - For initial staging of diagnosed or suspected cancer
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Common Diagnostic Indications

Thyroid

- Initial treatment strategy
 - Poorly differentiated papillary
 - Anaplastic
 - Medullary
 - Hurthle Cell
- Subsequent treatment strategy
 - Poorly differentiated papillary
 - Anaplastic
 - Medullary
 - Hurthle Cell
 - Well-differentiated papillary or follicular thyroid cancer
 - For evaluation of suspected recurrence when **both of the following** are met:
 - With negative I131 scan, or a history of a negative I131 scan
 - Stimulated thyroglobulin level greater than two (2) ng/dL in the absence of antibodies.
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms, or other imaging findings.

Note: PET is most useful for non-iodine avid thyroid cancer. Furthermore, alternative imaging modalities should be considered in those tumor types for which falsely negative PET or PET/CT results are commonly reported, including medullary thyroid carcinoma. PET should be used with caution unless disease is known to be FDG-avid.

Urogenital organs, other, including uterus, placenta, other female genitalia, testis, penis, and other male genitalia—excludes ovarian (epithelial), bladder and kidney cancers

- Initial treatment strategy
- Subsequent treatment strategy
- Surveillance
 - After one post-treatment study (documenting no evidence of disease) in the setting of curative disease (considered subsequent treatment strategy), PET can only be used to evaluate suspicion of recurrence based on signs, symptoms or other imaging findings.

Note: Alternative imaging modalities should be considered in those tumor types for which falsely negative PET or PET/CT results are commonly reported, including many renal cell (kidney) carcinomas. PET should be used with caution.

Screening: PET or PET/CT is considered not medically necessary as a screening test (i.e., for evaluation of patients without specific signs and symptoms of disease).

PET for screening or diagnosis of breast cancer is not a covered benefit by the Centers for Medicare & Medicaid Services and multiple health plans.

Other Considerations

PET mammography is an evolving technology under clinical development. This technology and its impact on health outcomes will continue to undergo review as new evidence-based studies are published. Interval routine coverage for PET mammography is not generally available and is not considered medically appropriate at this time.

PET bone scanning is currently only a covered benefit by the Centers for Medicare & Medicaid Services with CED. PET bone scanning is an evolving technology under clinical development. This technology and its impact on health outcomes will continue to undergo review as new evidence-based studies are published.

PET bone scan is considered not medically necessary.

PET Imaging of Infectious Processes

For diagnosis of chronic osteomyelitis involving the axial skeleton

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Gastric Cancer; Head and Neck Cancers; Hodgkin Lymphoma; Kidney Cancer; Melanoma; Multiple Myeloma; Non-Hodgkin's Lymphomas; Non-Small Cell Lung Cancer; Ovarian Cancer Including Fallopian Tube Cancer and Primary Peritoneal Cancer; Pancreatic Adenocarcinoma; Rectal Cancer; Small Cell Lung Cancer. Referenced with permission. To view the most recent and complete version of the NCCN Guidelines, go online to www.nccn.org.

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