CLINICAL GUIDELINES

Oncology Imaging Policy

Version 18.5 | Effective November 1, 2016

eviCore healthcare Clinical Decision Support Tool Diagnostic Strategies: This tool addresses common symptoms and symptom complexes. Imaging requests for individuals with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician, specialist and/or individual's Primary Care Physician (PCP) may provide additional insight.

ONCOLOGY IMAGING GUIDELINES

ABBREVIATIONS for ONCOLOGY GUIDELINES

ACTH	adrenocorticotropic hormone		
AFP	alpha-fetoprotein	**AP**	anteroposterior
betaHCG	beta human chorionic gonadotropin		
CA 125	cancer antigen 125 test	**CA 19-9**	cancer antigen 19-9
CA 15-3	cancer antigen 15-3	**CA 27-29**	cancer antigen 27-29
CBC	complete blood count		
CEA	carcinoembryonic antigen	**CNS**	central nervous system
CR	complete response		
CTA	computed tomography angiography	**DCIS**	ductal carcinoma in situ
DLBCL	diffuse large B cell lymphomas		
DRE	digital rectal exam	**EGD**	esophagogastroduodenoscopy
ENT	ear, nose, throat		
ERCP	endoscopic retrograde cholangiopancreatography		
ESR	erythrocyte sedimentation rate	**EUA**	exam under anesthesia
EUS	endoscopic ultrasound		
FDG	fluorodeoxyglucose	**FNA**	fine needle aspiration
FUO	fever of unknown origin		
GE	gastroesophageal	**GI**	gastrointestinal
GU	genitourinary		
HIV	human immunodeficiency disease		
HRPC	hormone refractory prostate cancer		
LCIS	lobular carcinoma in situ	**LDH**	lactate dehydrogenase
LFT	liver function tests		
MALT	mucosa associated lymphoid tissue		
MEN	multiple endocrine neoplasia	**MG**	myasthenia gravis
MGUS	monoclonal gammopathy of unknown significance		
MIBG	I-123 metaiodobenzylguanidine scintigraphy		
MRA	magnetic resonance angiography	**MRI**	magnetic resonance imaging
MUGA	'multiple gated acquisition' cardiac nuclear scan		
NaF	Sodium Fluoride		
NCCN®	National Comprehensive Cancer Network		
NHL	non-Hodgkin's lymphoma	**NPC**	nasopharyngeal carcinoma
NSABP	National Surgical Adjuvant Breast and Bowel Project		
NSAIDS	nonsteroidal anti-inflammatory drugs		
NSCLC	non-small cell lung cancer		
NSGCT	non-seminomatous germ cell tumor	**PA**	posteroanterior
PCI	prophylactic cranial irradiation		
PET	positron emission tomography	**COG**	Children's Oncology Group
PSA	prostate specific antigen	**RFA**	radiofrequency ablation
RPLND	retroperitoneal lymph node dissection		
SqCCa	squamous cell carcinoma	**SCLC**	small cell lung cancer
SIADH	syndrome of inappropriate secretion of antidiuretic hormone		
TCC	transitional cell carcinoma	**TNM**	tumor node metastasis staging system
TSH	thyroid-stimulating hormone		
TURBT	trans-urethral resection of bladder tumor		
VIPoma	vasoactive intestinal polypeptide		

WM	Waldenstrom's macroglobulinemia

ONC-1~GENERAL GUIDELINES

ONC-1~GENERAL GUIDELINES

ONC-1.1 Key Principles

The majority of malignancies occurring in the adult population are different diagnoses than those occurring in the pediatric population. For those diseases which occur in both adult and pediatric populations, minor differences may exist in management between adult and pediatric medical oncologists due to patient age, comorbidities, and differences in disease natural history between children and adults.

- ✓ Patients age ≥18 years old at initial diagnosis should be imaged according to the Oncology Imaging Guidelines, and patients age <18 years at initial diagnosis should be imaged according to the Pediatric Oncology Imaging Guidelines, except where directed otherwise by a specific guideline section.

- ✓ Patients age 15-39 years old at initial diagnosis are defined as Adolescent and Young Adult (AYA) Oncology patients. There is significantly more overlap between cancer types in this age group.
  - o When unique guidelines for a specific cancer type exist only in either Oncology or Pediatric Oncology, AYA patients should be imaged according to the guideline section for their specific cancer type, regardless of the patient's age.
  - o When unique guidelines for a specific cancer type exist in both Oncology and Pediatric Oncology, AYA patients should be imaged according to the age rule in the previous bullet.

- ✓ In general, a recent (within 60 days) detailed history and physical examination and appropriate laboratory studies should be performed prior to considering advanced imaging, unless the patient is undergoing guideline-supported scheduled off therapy surveillance evaluation. The clinical evaluation may include a relevant history and physical examination, including biopsy, appropriate laboratory studies, and non-advanced imaging modalities.

- ✓ Other meaningful contact (telephone call, electronic mail or messaging) by an established patient can substitute for a face-to-face clinical evaluation.

Clinical evaluation is ongoing and many interval visits may rely partially or completely on history and physical examination to diagnose and monitor certain malignant diseases without a need for advanced imaging. **Conventional Imaging General Considerations.**

The following are general principles in advanced oncology imaging. Exceptions to these principles may be addressed in disease specific guidelines.

- ✓ The majority of oncology imaging decisions are listed in the diagnosis-specific guideline sections, but for rare malignancies and other circumstances not specifically addressed elsewhere in the Oncology guidelines, the following general principles apply:
  - o Routine imaging of brain, spine, neck, chest, abdomen, pelvis, bones, or other body areas is not indicated in the absence of localizing symptoms or abnormalities on plain radiography or ultrasound.
- ✓ Ultrasound (US) can be adequate and definitive for many gynecological tumors.
- ✓ In oncology patients, CT imaging should be performed with contrast for known or suspected body regions, unless a contraindication or other need is identified. Shellfish allergy is not a contraindication to contrast. Patients with known shellfish allergy do not have contrast reaction any more often than other atopic individuals or patients with other food allergies.
  - o For imaging in patients with renal insufficiency which precludes contrast, CT without contrast of appropriate disease-specific areas should be offered. Further imaging (such as MRI) may be indicated if noncontrast CT results are inconclusive.
  - o For contrast dye allergy, either CT scans without contrast or MRI scans without and with contrast are indicated.
- ✓ Conventional imaging (mostly CT, sometimes MRI or US) of the affected area(s) drives much of initial and re-staging and surveillance (see chart in next section).
  - o Tumor involvement can also frequently be evaluated by local, regional or distant signs or symptoms, tumor markers, or other laboratory studies
  - o Except where explicitly stated in a diagnosis-specific guideline section, advanced imaging of the neck, chest, abdomen, and/or pelvis are not indicated in oncological evaluations unless one of the following applies:
    - Known prior disease involving the requested body area
    - New or worsening symptoms or physical exam findings involving the requested body area (including non-specific findings such as ascites or pleural effusion)
    - New finding on basic imaging study such as plain x-ray or ultrasound
    - New finding on adjacent body area CT/MRI study (i.e., pleural effusion observed on CT abdomen)
- ✓ The use of MRI in place of CT scans to reduce risk of secondary malignancy is not supported by the peer-reviewed literature. Unless otherwise specified in the

Guidelines, MRI in place of CT scans for this purpose alone is not indicated. In some instances (i.e., testicular cancer surveillance), MRI may be considered inferior to CT scans.

- ✓ PET is not indicated for surveillance imaging unless specifically stated in elsewhere in the diagnosis-specific guideline sections.
- ✓ Brain imaging is performed for signs or symptoms of brain disease:
  - o Certain malignancies including, but not limited to melanoma, lung cancer, and renal cell cancer have indications for asymptomatic patients.
  - o If stage IV disease is demonstrated elsewhere **or** if newly progressive disease, refer to disease specific guidelines.
  - o Initiation of angiogenesis therapy is not an indication for advanced imaging of the brain in asymptomatic patients (Avastin/bevacizumab; <3% risk of bleeding and <1% risk of serious bleeding).
  - o MRI Brain without and with contrast (CPT® 70553) is the recommended study for evaluation of suspected or known brain metastases.
    - CT without and with contrast (CPT® 70470) can be approved when MRI is contraindicated or not available, or there is skull bone involvement.
- ✓ For most patients echocardiography (CPT® 93306, 93307, or 93308) instead of MUGA is recommended for cardiac evaluation in patients receiving cardiotoxic chemotherapy. See **CD-3.5 MUGA Study-Oncologic Indications** for MUGA indications.
- ✓ Bone scan supplemented by plain x-rays are the initial imaging modalities for suspected malignant bone pain. For specific imaging indications, see:
  - o **ONC-1.3 - Nuclear Medicine (NM) Imaging in Oncology**
  - o **ONC-31.5 Bone (including Vertebral) Metastases**
  - o **ONC-31.6 Spinal Cord Compression**
  - o **ONC-31.7 Carcinoma of Unknown Primary Site**
- ✓ CTA or MRA of a specific anatomic region is indicated when requested for surgical planning when there is suspected vascular proximity to proposed resection margin.
- ✓ Neoadjuvant therapy is often performed anticipating "planned" surgery and so advanced imaging is not routinely needed, prior to resection.
- ✓ Advanced imaging is not supported for evaluation of response in patients who are receiving only complementary or alternative therapies.
  - o All advanced imaging indicated for initial staging of the specific cancer type can be approved when the patient is considering initiation of a standard therapeutic approach (surgery, chemotherapy, or radiation therapy).

- ✓ Imaging initially performed prior to diagnosis should not be repeated prior to surgical resection or initiation of chemotherapy unless there is a delay of at least 6 weeks since previous imaging and consultation or there are new or significantly worsening clinical signs or symptoms.
- ✓ Whole body MRI imaging is considered investigational for all oncology indications at this time. See **Preface-5.2~Whole Body MR Imaging** for details.
- ✓ Certain tumor types do not require surveillance with advanced imaging as patient outcomes following relapse are not improved by surveillance imaging. See diagnosis-specific guideline sections for details.

ONC-1.2 Phases of Oncology Imaging and General Phase-Related Considerations

- ✓ **Screening**:
  - o All imaging studies requested for patients at increased risk for a particular cancer in the absence of any clinical signs or symptoms.
  - o Screening using advanced imaging is only supported for conditions listed in **PEDONC-2~Screening Imaging in Cancer Predisposition Syndromes**.
- ✓ **Suspected/Diagnosis**:
  - o All imaging studies requested prior to tissue confirmation, when the clinical picture is suspicious for cancer.
- ✓ **Initial Workup, Staging**:
  - o All imaging studies requested from the time following biopsy confirmation of cancer until the initiation of specific treatment (which may be surgical resection alone), unless biopsy is not required in a diagnosis-specific guideline section.
- ✓ **Treatment Response, Interim Restaging**:
  - o All imaging studies completed during any type of active treatment (chemotherapy or other medications, radiation therapy, or surgery), including evaluation at the end of planned active treatment, for patients with measurable lesions on imaging.
  - o Conventional (CT or MRI) diagnostic imaging no more frequent than every 2 cycles (generally every 6 weeks) since last scan evaluation or other clinical justification.
    - Patients receiving only endocrine/hormonal therapy only for metastatic breast cancer: Repeat imaging is indicated no more often than once every 3 months.

- For patients with known metastatic disease being observed without therapy ("chemo-holiday") or for those with minimal metastatic disease who are on maintenance therapy, imaging should be considered no more often than every 3 months or for new signs/symptoms to suggest progression. Once patient reinitiates treatment, then follow interim restaging time frame.

✓ **Restaging of Locally Treated Lesions**:
- Diagnostic procedures to be used for evaluation of lesions treated with Radiofrequency Ablation, Chemoembolization or other Interventional Procedures
  - Ablation of liver metastases or primary HCC may be done utilizing chemical, chemotherapeutic, radiofrequency, or radioactive isotope
  - Regardless of the methodology used for embolization, PET imaging is not indicated for assessing response to this mode of therapy
- CT of body area involved either with contrast or without and with contrast or MRI of body area involved without and with contrast
- Scan prior to procedure, then 1 month after procedure and follow-up not more often than every 3 months
- See: **ONC-31.2 Liver Metastases** for additional guidelines regarding ablated liver lesions

✓ **Restaging/Recurrence**:
- All imaging studies completed at the time a recurrence or progression of a known cancer is documented or is strongly suspected based on clinical signs or symptoms, laboratory findings, or results of basic imaging studies such as plain radiography or ultrasound
- Except where explicitly stated in a diagnosis-specific guideline section, restaging a patient receiving adjuvant chemotherapy whose primary modality of definitive local therapy was complete surgical resection is inappropriate
- Except where explicitly stated in a diagnosis-specific guideline section, f following documented recurrence of cancer, any studies recommended for initial staging of that cancer type in the diagnosis-specific imaging guideline section should be approved

✓ **Surveillance**:
- All routine imaging studies requested for a patient who is not receiving any active treatment, even if residual imaging abnormalities are present
- The recommended timing for surveillance imaging studies in these guidelines refers to patients who are asymptomatic or have stable chronic symptoms

- Certain tumor types do not require surveillance with advanced imaging as patient outcomes following relapse are not improved by surveillance imaging. See diagnosis-specific guideline sections for details.
- PET imaging is not supported for surveillance imaging unless specifically stated in elsewhere in the diagnosis-specific guideline sections
- For patients with history of metastatic cancer who have had complete response and are taken off therapy, follow-up/surveillance imaging would not be indicated after 5 years diagnosis with metastatic disease, unless new symptoms or specific cancer guidelines state otherwise
- **Patients with new or changing clinical signs or symptoms suggesting recurrent disease should have symptom-appropriate imaging requests approved even when surveillance timing recommendations are not met**

ONC-1.3 - Nuclear Medicine (NM) Imaging in Oncology

- ✓ This section does not apply to PET imaging. PET imaging considerations can be found in **ONC - 1.4**
- ✓ The most frequent indication for the use of NM Imaging in cancer is for the evaluation of bone metastases in patients with solid malignancies. For the purpose of these guidelines, any one of the following CPT® codes may be approved where bone scan is indicated:
  - CPT®78300
  - CPT®78305
  - CPT®78306
  - CPT® 78320 (SPECT)
    - A SPECT scan (CPT® 78320) may be approved for any of the indications for which a bone scan can be approved.
    - If the request is for CPT® 78300 and CPT®78320 then only the CPT®78320 is to be approved if medical necessity is established.
    - If the request is for CPT®78305 or CPT®78306 and CPT®78320 then two codes can be approved if medical necessity is established
  - CPT® 78315 has no specific indications for evaluation of malignant disease
- ✓ Examples of indications for bone scan in patients with history of malignancy include:
  - bone pain
  - rising tumor markers
  - elevated alkaline phosphatase
  - Primary bone tumor
- ✓ Other uses of NM studies are more directed and specific for certain malignancies (i.e. carcinoid; pheochromocytoma) which express unique cell markers for specific radioisotopes. See specific guideline recommendations for

use these studies. CPT® codes for this modality use CPT®78800, CPT®78801, CPT®78802, CPT®78803, or CPT®78804.

- ✓ Nuclear Medicine Imaging scans that are rarely ordered or necessary (since generally there are better imaging studies) are listed below. In the event of a specific request, the following NM scans can be approved for the noted indications:
  - o Bone Marrow Imaging (CPT®78102, CPT®78103, or CPT®78104):
    - Myeloproliferative (including polycythemia vera and myelofibrosis) disorders
    - sickle cell bone infarct or ischemia
    - avascular necrosis
    - asymmetric marrow distribution (myeloma; Hodgkin's lymphoma)
  - o Spleen Imaging (CPT®78185):
    - Splenic metastases
  - o Brain Imaging SPECT (CPT®78607):
    - Immunocompromised patients with mass lesion detected on CT or MR for differentiation of lymphoma and infection
  - o CSF Leakage Detection (CPT® 78650) is indicated for evaluation of post-lumbar puncture headache
  - o Radiopharmaceutical imaging (CPT® 78805, 78806, or 78807) can be approved to evaluate drug-induced pulmonary reactions or toxicity due to cyclophosphamide, busulfan, or bleomycin
- ✓ Gallium Isotope Scan (CPT®78800, CPT®78801, CPT®78802, CPT®78803, or CPT®78804) is only to be used if PET scan not available and PET is indicated by guidelines:
  - o Lymphomas
  - o Sarcoma
  - o Melanoma
  - o Myeloma
  - o Head/Neck cancer.

ONC - 1.4 – PET Imaging in Oncology

NOTE: *Some payers have specific restrictions on PET imaging, and those coverage policies may supersede the recommendations for PET imaging in these guidelines.*

Throughout these guidelines, the term "PET" refers specifically to ^{18}F-FDG-PET imaging and also applies to PET/CT fusion studies.

- ✓ PET imaging in oncology should use PET/CT fusion imaging (CPT®78815 or CPT®78816) unless there is clear documentation that the treating facility does not have fusion capacity, in which case PET alone (CPT®78812 or CPT®78813)

can be approved along with the appropriate CT studies. Unbundling PET/CT imaging into separate PET and diagnostic CT codes is otherwise not supported.

- ✓ The decision whether to use skull base to mid-femur ("eyes to thighs") procedure code for PET (CPT®78812 or CPT®78815) or whole body PET (CPT®78813 or CPT®78816) is addressed in the diagnosis-specific guideline sections.
- ✓ 'Limited area' protocol is done infrequently, but may be considered. Studies are reported with codes: for PET, (CPT®78811) or for PET/CT, (CPT®78814) and should be forwarded for medical director review.
- ✓ PET has not been shown to be diagnostically useful in all forms of cancer. PET is supported for malignancies with significant published evidence regarding its diagnostic accuracy and importance in accurately directing patient care decisions. See diagnosis-specific guideline sections for details.
- ✓ PET imaging is not specific to cancer, and has a high rate of false positivity. Inflammation, infection (especially granulomatous), trauma, and post-operative healing may show high levels of FDG uptake and be false-positive for malignant lesions.
- ✓ PET may be considered prior to biopsy in order to determine a more favorable site for biopsy when a prior biopsy was nondiagnostic or a relatively inaccessible site is contemplated which would require invasive surgical intervention for biopsy attempt
- ✓ Except where explicitly stated in a diagnosis-specific guideline section, PET imaging is **NOT** indicated for:
  - o Concomitantly, with separate diagnostic CT studies
  - o Surveillance
  - o Distant or diffuse metastatic disease
  - o Metastatic disease in the central nervous system (CNS)
  - o Lesions less than 8 mm in size
  - o Follow-up after localized therapy (i.e., radio-frequency ablation; embolization; stereotactic radiation, etc.)
- ✓ Delay PET for at least 12 weeks after completion of radiation treatment, unless required sooner for imminent surgical resection. PET requests <12 weeks from completion of radiation treatment should be forwarded for medical director review.
- ✓ PET imaging using isotopes other than ^{18}F-FDG, including ^{18}F-NaF (PET bone scan) ^{11}C-Choline, ^{68}Ga-DOTATATE, and Fluciclovine F 18, is considered investigational at this time

- ✓ PET mammography (PEM, generally reported with CPT® 78811) is considered experimental and investigational at this time.

- ✓ Unless otherwise specified for a specific cancer type, once PET has been documented to be negative for a given patient's cancer or all PET-avid disease has been surgically resected, PET should not be used for continued disease monitoring or surveillance unless one of the following applies:
  - o Conventional imaging (CT, MRI, US, plain film) reveals findings that are inconclusive or suspicious for recurrence
    - ▪ Residual mass that has not changed in size since the last conventional imaging does **not** justify PET imaging
    - ▪ PET avidity in a residual mass at the end of planned therapy is **not** an indication for PET imaging during surveillance.
  - o Very rare circumstances where tumor markers or obvious clinical symptoms show strong evidence suggesting recurrence and PET would replace conventional imaging modalities
  - o The patient is undergoing salvage treatment for a recurrent solid tumor with residual measurable disease on conventional imaging and confirmed repeat negative PET imaging will allow the patient to transition from active treatment to surveillance.
  - o These requests will be forwarded for Medical Director Review.

- ✓ PET for rare malignancies not covered by eviCore guidelines is generally not indicated, due to lack of available evidence regarding diagnostic accuracy of PET in the majority of rare cancers. Conventional imaging studies should be used for initial staging and treatment response for these diagnoses. PET can be approved if all of the following apply:
  - o Conventional imaging (CT, MRI, US, plain film) reveals findings that are equivocal or suspicious
  - o No other specific metabolic imaging (MIBG, octreotide, technetium, etc.) is appropriate for the disease type
  - o The submitted clinical information describes a specific decision regarding the patient's care that will be made based on the PET results
  - o These requests will be forwarded for medical director review

ONC-1.5 Coding and Payer Notes

Coding and Payer Notes
eviCore does preauthorize requests for CT or MRI associated with image-directed biopsy or radiation therapy treatment planning for some payers. (See Quick Reference for details)
eviCore does not routinely evaluate preauthorize requests for PET associated with

image-directed biopsy or radiation therapy treatment planning. (See Quick Reference for details)
There is often no unique procedure code for a service performed solely for treatment planning purposes.
AMA instructions in CPT® state that if no specific code exists for a particular service, the service is reported with an unlisted code.
Imaging performed in support of radiation therapy treatment planning should be reported with the following codes: (CPT®76497 for CT, CPT® 76498 for MRI, or CPT® 78999 for PET), not with diagnostic imaging codes.
Imaging associated with image-directed biopsy should be reported with the corresponding interventional codes. See: **Preface-4.2 CT-, MR-, or Ultrasound-Guided Procedures**.

ONC-1.6 Predisposition Syndromes

For predisposition syndrome screening in adult patients, see:
PEDONC-2~Screening Imaging in Cancer Predisposition Syndromes

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ONC-2~Primary Central Nervous System Tumors and PET in Neuro-Oncology and Neurology

ONC-2~Primary Central Nervous System Tumors

This guideline section applies to primary CNS tumors only. For imaging guidelines in metastatic brain cancer, see the appropriate diagnosis-specific section or **ONC-31.3 Brain Metastases** for imaging guidelines.

ONC-2.1 General Considerations

- ✓ Primary brain tumors presenting only with uncomplicated headache are very uncommon. Most primary brain tumors present with specific CNS symptoms.
- ✓ Histologic confirmation is critical. Therapeutic decisions should not be made on radiographic findings alone, except for the following:
  - o Medically fragile patients for whom attempted biopsy carries excess medical risk, as stated in writing by both the attending physician and surgeon.
  - o Brain stem tumors or other sites where the imaging findings are pathognomonic and the risk of permanent neurological damage is excessive with even a limited biopsy attempt.
- ✓ MRI Brain without and with contrast (CPT®70553) is appropriate for both characterization and follow-up of all brain tumors
  - o CT Head without and with contrast (CPT® 70470) can be approved when MRI is contraindicated or not available, or there is skull bone involvement
  - o CT Head (contrast as requested can be approved for preoperative planning when requested by the operating surgeon
- ✓ MRA or CTA are not routinely indicated in primary CNS tumors but can be approved for preoperative planning or to clarify inconclusive findings on MRI or CT
- ✓ For suspected brain tumors in neurofibromatosis, see: **PEDONC-2~Screening Imaging in Cancer Predisposition Syndromes**
- ✓ MRI Brain without and with contrast (CPT®70553) can be repeated within 24 to 72 hours following brain tumor surgery
- ✓ MRI Brain without and with contrast (CPT®70553) is appropriate when a patient with a diagnosed brain tumor deteriorates or develops new features.
- ✓ Rare tumors occurring more commonly in the pediatric population should be imaged according to the imaging guidelines in:

PEDONC-4 Pediatric Central Nervous System Tumors

MR Spectroscopy in Brain Tumors (MRS, CPT®76390)

NOTE: *Some payers have specific restrictions on MR Spectroscopy, and those coverage policies may supersede the recommendations for MRS in these guidelines*

- ✓ MRS is only supported for use in brain tumors of specified histologies where diagnostic accuracy has been established in peer-reviewed literature
  - o See diagnosis-specific guidelines for MRS indications
- ✓ MRS is considered investigational/experimental for all other histologies and indications not listed in a diagnosis-specific guideline section Requests for MRS should be forwarded for Medical Director review
- ✓ MRS is considered investigational/experimental for all other histologies and indications not listed in a diagnosis-specific guideline section Requests for MRS should be forwarded for Medical Director review

PET Brain Imaging (CPT®78608 and 78609)

NOTE: *Some payers have specific restrictions on PET Brain Metabolic Imaging, and those coverage policies may supersede the recommendations for this study in these guidelines.*

- ✓ PET Brain Metabolic Imaging (CPT®78608) is only supported for use in brain tumors of specified histologies where diagnostic accuracy has been established in peer-reviewed literature
  - o See diagnosis-specific guidelines for PET indications
  - o According to Medicare NCD 220.6.17, FDG-PET may be approved once for initial treatment strategy and three times for subsequent treatment strategy for brain tumors. See **ONC-32.1 Oncologic FDG PET** for details.
- ✓ PET Brain Metabolic Imaging (CPT®78608) is considered investigational/experimental for all other histologies and indications not listed in a diagnosis-specific guideline section
- ✓ PET Brain Perfusion Imaging (CPT® 78609) is not indicated in the evaluation or management of primary CNS tumors, and is nationally non-covered by Medicare per NCD 220.6.17.
- ✓ Body PET studies (CPT® 78811, 78812, and 78813) and fusion PET/CT studies (CPT® 78814, 78815, or 78816) are not indicated in the evaluation or management of primary CNS tumors
- ✓ Requests for PET Brain Metabolic should be forwarded for Medical Director review

ONC-2.2 Low Grade Gliomas

These tumors are defined as having a WHO histologic grade of I or II (out of IV), can occur anywhere in the CNS, and includes the following tumors:

- Pilocytic Astrocytoma
- Fibrillary (or Diffuse) Astrocytoma
- Optic Pathway Gliomas
- Pilomyxoid Astrocytoma
- Oligodendroglioma
- Oligoastrocytoma
- Oligodendrocytoma
- Subependymal Giant Cell Astrocytoma (SEGA)
- Ganglioglioma
- Gangliocytoma
- Dysembryoplastic infantile astrocytoma (DIA)
- Dysembryoplastic infantile ganglioglioma (DIG)
- Dysembryoplastic neuroepithelial tumor (DNT)
- Tectal plate gliomas
- Cervicomedullary gliomas
- Pleomorphic xanthoastrocytoma (PXA)
- Any other glial tumor with a WHO grade of I or II

Indication	Imaging Study(ies)
Initial Staging	• MRI Brain without and with contrast (CPT® 70553) if not already done • MRI Spine without and with contrast (cervical-CPT® 72156, thoracic-CPT® 72157, lumbar-CPT® 72158) o MRI Spine with contrast only (cervical-CPT® 72142, thoracic-CPT® 72147, lumbar-CPT® 72149) can be approved if being performed immediately following a contrast-enhanced MRI Brain
After initial resection or other treatment (XRT, etc.)	• MRI Brain without and with contrast (CPT® 70553)
One of the following: • Determine need for biopsy when transformation to high grade glioma is suspected based on clinical symptoms or	• PET Brain Metabolic Imaging (CPT® 78608)

recent MRI findings • Evaluate a brain lesion of indeterminate nature when the PET findings will be used to determine whether biopsy/resection can be safely postponed	
One of the following: • Distinguish low grade from high grade gliomas • Evaluate a brain lesion of indeterminate nature when the MRS findings will be used to determine whether biopsy/resection can be safely postponed • Distinguish radiation-induced tumor necrosis from progressive disease within 18 months of completing radiotherapy	• MR Spectroscopy (CPT® 76390)
Surveillance	• MRI Brain without and with contrast (CPT® 70553) every 3 months for 2 years, then every 6 months for 3 years, then annually o Patients with documented residual masses can have annual imaging until 20 years after completion of therapy due to the risk of late transformation of these tumors o Patients with cord involvement at diagnosis can have MRI spine without and with contrast (cervical-CPT® 72156, thoracic-CPT® 72157, lumbar-CPT® 72158) on the same schedule as MRI Brain

ONC-2.3 High Grade Gliomas

These tumors are defined as having a WHO histologic grade of III or IV (out of IV can occur anywhere in the CNS (though the majority occur in the brain), and includes the following tumors:

- Anaplastic astrocytoma
- Glioblastoma multiforme
- Diffuse intrinsic pontine glioma (DIPG, or "brainstem glioma")
- Gliomatosis cerebri
- Gliosarcoma
- Anaplastic oligodendroglioma
- Anaplastic ganglioglioma
- Anaplastic mixed glioma
- Anaplastic mixed ganglioneuronal tumors
- Any other glial tumor with a WHO grade of III or IV

Indication	Imaging Study(ies)
Initial Staging	• MRI Brain without and with contrast (CPT® 70553) if not already done • MRI Spine without and with contrast (cervical-CPT® 72156, thoracic-CPT® 72157, lumbar-CPT® 72158) o MRI Spine with contrast only (cervical-CPT® 72142, thoracic-CPT® 72147, lumbar-CPT® 72149) can be approved if being performed immediately following a contrast-enhanced MRI Brain
Immediately following partial or complete resection	• MRI Brain without and with (CPT® 70553)
Immediately following radiation therapy (XRT)	• MRI Brain without and with contrast (CPT® 70553) once within 2 to 6 weeks following completion of treatment, and then go to surveillance imaging
For measurable disease undergoing chemotherapy treatments	• MRI Brain without and with contrast (CPT® 70553) every 2 cycles
<u>One of the following:</u> • Distinguish low grade from high grade gliomas	

• Evaluate a brain lesion of indeterminate nature when the MRS findings will be used to determine whether biopsy/resection can be safely postponed • Distinguish radiation-induced tumor necrosis from progressive disease within 18 months of completing radiotherapy	• MR Spectroscopy (CPT® 76390)
One of the following: • Distinguish radiation-induced tumor necrosis from progressive disease within 18 months of completing radiotherapy • Evaluate inconclusive MRI findings when the PET findings will be used to determine need for biopsy or change in therapy, including a change from active therapy to surveillance • Evaluate a brain lesion of indeterminate nature when the PET findings will be used to determine whether biopsy/resection can be safely postponed	• PET Brain Metabolic Imaging (CPT® 78608) • PET Brain is not indicated in gliomas occurring in the brain stem due to poor uptake and lack of impact on patient outcomes
Surveillance	• MRI Brain without and with contrast (CPT®70553) every 3 months for 3 years, then every 6 months for 2 years, then annually until 10 years after completion of therapy o Patients with documented residual masses can have annual imaging until 20 years after completion of therapy due to the risk of late transformation of these tumors o Patients with cord involvement at

	diagnosis can have MRI spine without and with contrast (cervical-CPT®72156, thoracic-CPT®72157, lumbar-CPT®72158) on the same schedule as MRI Brain

ONC-2.4 Medulloblastoma and Supratentorial Primitive Neuroectodermal Tumors (sPNET)

Medulloblastoma and sPNET imaging indications in adult patients are identical to those for pediatric patients. See **PEDONC-4.4 Medulloblastoma (MDB), Supratentorial Primitive Neuroectodermal Tumors (sPNET), and Pineoblastoma** for imaging guidelines.

ONC-2.5 Ependymoma

Ependymoma imaging indications in adult patients are identical to those for pediatric patients. See **PEDONC-4.8 Ependymoma** for imaging guidelines.

ONC-2.6 Central Nervous System Germ Cell Tumors

Central nervous system germ cell tumor imaging indications in adult patients are identical to those for pediatric patients. See **PEDONC-4.7 CNS Germinomas and Non-Germinomatous Germ Cell Tumors (NGGCT)** for imaging guidelines.

ONC-2.7 CNS Lymphoma (also known as microglioma)

Indication	Imaging Study(ies)
Initial Staging	All of the following are indicated: • MRI Brain without and with contrast (CPT® 70553) • MRI Cervical spine without and with contrast (CPT® 72156) • MRI Thoracic spine without and with contrast (CPT® 72157) • MRI Lumbar spine without and with contrast (CPT® 72158)
Extra-neural evaluation to confirm CNS primary ***Patients with CNS Lymphoma that is metastatic should be imaged according**	Any or all of the following are indicated: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast

to: • **ONC-27~NON-HODGKIN LYMPHOMAS** for patients age ≥18 years • **PEDONC-5.3 Pediatric Aggressive Mature B-Cell Non-Hodgkin Lymphomas (NHL)** for patients age ≤17 years	(CPT® 74177) • PET/CT (CPT® 78815) can be approved for evaluation of inconclusive findings on CT imaging
Treatment Response	• MRI without and with contrast of all positive disease sites every 2 cycles
Surveillance	• MRI without and with contrast of all positive disease sites every 3 months for 2 years, then every 6 months for 3 years, then annually until 10 years after completion of therapy

ONC-2.8 Meningiomas

Indication	Imaging Study(ies)
Initial Staging	Any or all of the following are indicated: • MRI Brain without and with contrast (CPT®70553) • CT Head (contrast as requested) • Octreotide or Gallium Brain scintigraphy (CPT®78800, 78801, 78802, 78803, or 78804)
Treatment Response	• MRI without and with contrast of all positive disease sites every 2 cycles
Surveillance for all meningiomas (completely resected, partially resected, and unresected)	• MRI Brain without and with contrast (CPT®70553) at 3, 6, and 12 months , then every 6 months for 5 years, then annually

ONC-2.9 Spinal Cord Tumors

Primary spinal cord tumor imaging indications in adult patients are identical to those for pediatric patients. See **PEDONC-4.9 Malignant Tumors of the Spinal Cord** for imaging guidelines.

ONC-2.10 Choroid Plexus Tumors

Choroid Plexus Tumor imaging indications in adult patients are identical to those for pediatric patients. See **PEDONC-4.13 Choroid Plexus Tumors** for imaging guidelines.

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ONC-3~SQUAMOUS CELL CARCINOMAS of the HEAD and NECK

ONC-3~SQUAMOUS CELL CARCINOMAS of the HEAD and NECK

- ✓ For squamous cell "lip" and "cheek" cancer imaging requests, see: **ONC-5~Melanomas and Other Skin Cancers**.

- ✓ Patients with esthesioneuroblastoma should be imaged according to this guideline section

ONC-3.1 SUSPECTED/DIAGNOSIS

- ✓ See **NECK-6~NECK MASSES** for imaging guidelines for evaluation of suspected malignancy in the neck
- ✓ PET may be considered prior to biopsy in order to determine a more favorable site for biopsy when a prior biopsy was nondiagnostic or a relatively inaccessible site is contemplated which would require invasive surgical intervention for biopsy attempt

ONC-3.2 INITIAL WORK-UP/STAGING

Diagnosis	Imaging Study
All Stages of Disease	• CT Neck with contrast (CPT®70491) ***or*** MRI Orbits/Face/Neck without and with contrast (CPT®70543) • Chest x-ray or CT Chest with contrast (CPT®71260) • Lymph system imaging (lymphoscintigraphy, CPT®78195) is indicated for sentinel lymph node evaluation when nodes are not clinically positive
Any head and neck cancer with neurological findings or suspicion of skull base invasion	• MRI Brain without and with contrast (CPT®70553)
Nasal cavity and paranasal sinuses (bony erosion or skull base and intracranial involvement)	Any one of the following studies is indicated: • CT Maxillofacial with contrast (CPT®70487) • CT Neck with contrast (CPT®70491) MRI Orbits/Face/Neck without and with contrast (CPT®70543)

Nasopharyngeal (NPC) Cancer	• MRI Orbits/Face/Neck without and with contrast (CPT®70543) is the preferred study o CT Neck (CPT®70491) and/or CT Maxillofacial (CPT®70487) with contrast can be approved if contraindication to MRI • Chest x-ray or CT Chest with contrast (CPT®71260)
For any of the following: • Known stage III or IV disease (see Practice Note) • Nasopharyngeal primary site • Inconclusive findings on conventional imaging (CT, MRI) • Prior to start of primary chemoradiotherapy and have not undergone definitive surgical resection • In order to direct laryngoscopy/exam under anesthesia for biopsy • Pulmonary nodule(s) ≥8 mm in size (see **CH-12** and **CH-16**) • Cervical lymph node biopsy positive for squamous cell carcinoma and no primary site identified on CT or MRI • Inconclusive findings suggestive of disease outside the head and neck area	• PET/CT (CPT®78815)
Signs or symptoms of abdominal metastatic disease, including elevated liver function tests	• CT Abdomen with contrast (CPT®74160)

Practice Note:

- CT pelvis is not indicated for the initial work up of any head and neck malignancy except for work up of an occult primary to lower neck nodes, where CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast is indicated

- Imaging of the CNS (head, spine) is indicated only to evaluate specific signs or symptoms or if concern for base of skull invasion suggesting spread to those areas
- Stage III/IV disease encompasses any primary tumor larger than 4 cm or documented lymph node positive disease

ONC-3.3 RESTAGING/RECURRENCE – Imaging

Indication	Imaging Study
Following complete resection and/or radical neck dissection	See Surveillance imaging
Following primary chemoradiotherapy for Stage III or IV disease	• CT Neck with contrast (CPT®70491) ***or*** MRI Orbits/Face/Neck without and with contrast (CPT® 70543) • PET is indicated (no sooner than 12 weeks post completion XRT) for: o Evaluating the need for salvage surgery/radical neck dissection in patients with measurable residual disease on physical exam or recent CT or MRI o Distinguishing active tumor from radiation fibrosis
Induction chemotherapy response	• CT neck with contrast CPT®70491) ***or*** MRI Orbits/Face/Neck without and with contrast (CPT® 70543) o PET not indicated to assess response to induction chemotherapy
Any recurrence suspected or biopsy proven – non-metastatic	• CT Neck with contrast (CPT® 70491) ***or*** MRI Orbits/Face/Neck without and with contrast (CPT® 70543); • CT Chest with contrast (CPT71260)
Inconclusive conventional imaging (CT or MRI) or biopsy proven local recurrence	• PET/CT (CPT® 78815)
If new symptoms or chest previously involved	• CT Chest with contrast (CPT® 71260)

ONC-3.4 SURVEILLANCE/FOLLOW-UP

Indications	Imaging Study
Stage III-IV carcinoma with any of the following primary sites: • Nasopharynx • Oropharynx • Hypopharynx • Glottic or supraglottic larynx Any stage carcinoma with any of the following primary sites: • Sinus • Lip	Once within 6 months of completing all treatment: • CT Neck with contrast (CPT® 70491) or MRI Orbits/Face/Neck without and with contrast (CPT® 70543) • CT with contrast of any other involved body area
After initial post-treatment study, for any of the following: • Nasopharyngeal primary site • Physical exam unable to evaluate primary site for recurrence	Annually for 3 years: • CT Neck with contrast (CPT® 70491) or MRI Orbits/Face/Neck without and with contrast (CPT® 70543)
All other site and stages not listed above	• Routine advanced imaging is not indicated

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ONC-4~Salivary Gland Cancers

ONC-4~Salivary Gland Cancers

ONC-4.1 SUSPECTED/DIAGNOSIS

✓ See **NECK-12~SALIVARY GLAND DISORDERS** for imaging guidelines for evaluation of suspected malignancy in the salivary glands

ONC-4.2 INITIAL WORKUP/STAGING

Diagnosis	Imaging Study
Biopsy-proven malignancy (only if none of these imaging studies has already been done)	Any one of the following can be approved: • MRI Orbits/Face/Neck without and with contrast (CPT®70543) • CT Neck with contrast (CPT®70491) • CT Neck without contrast (CPT®70490)
Skull base invasion	• MRI Brain without and with contrast (CPT®70553)
Abnormalities on chest x-ray or if lymphadenopathy in neck.	• CT Chest with contrast (CPT®71260)
Only for suspicious lung abnormalities	• PET/CT (CPT® 78815) See: **CH-16~Solitary Pulmonary Nodule**

ONC-4.3 RESTAGING/RECURRENCE

Indication	Imaging Study
Patients with unresected disease receiving systemic therapy (chemotherapy)	One of the following may be approved every 2 cycles: • CT Neck with contrast (CPT®70491) and any other sites of disease • MRI Orbits/Face/Neck without and with contrast (CPT®70543) and any other sites of disease
Recurrence or progression suspected based on new or worsening signs or symptoms	One of the following may be approved: • CT Neck with contrast (CPT®70491) • MRI Orbits/Face/Neck without and with contrast (CPT®70543) In addition, for all patients: • CT Chest with contrast (CPT®71260)
All other patients	• No routine advanced imaging indicated

ONC-4.4 SURVEILLANCE/FOLLOW UP

Indication	Imaging Study
Total surgical resection	• No routine advanced imaging indicated
Unresectable or partially resected disease, including those treated with XRT	• Either CT Neck (CPT®70491) or MRI Orbits/Face/Neck (CPT®70543) once within 6 months of end of treatment and then no further routine imaging unless there are new or worsening signs or symptoms.

Practice Note:

- The role of PET in salivary gland tumors has yet to be established.
- There are over a dozen histologic types of salivary gland tumors. Over 80% of parotid tumors are benign.
- A bilateral parotid tumor can be Warthin's tumor.
- Lymphoma and metastatic squamous carcinoma can occur in the parotid gland.
- Surveillance/follow-up is primarily by physical exam and chest X-ray only.
- Routine surveillance imaging is not indicated without new symptoms or findings on clinical exam.

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ONC-5~Melanomas and Other Skin Cancers

ONC-5~Melanomas and Other Skin Cancers

ONC-5.1 SUSPECTED/DIAGNOSIS

Suspected/Diagnosis	Imaging Study
All	• Imaging is not indicated until histologic diagnosis is confirmed

ONC-5.2 INITIAL WORK-UP/STAGING (Melanoma)

Melanoma	Imaging Study
Stage 0 or Ia (in situ or disease <1 mm)	• Routine advanced imaging is not indicated
• Stage Ib (≤1 mm with ulceration or high mitotic rate) • Stage II (lesions >1 mm thick, but node negative)	• CT with contrast or MRI without and with contrast of specific areas, only if signs or symptoms indicate need for further evaluation • Lymph system imaging (lymphoscintigraphy, CPT®78195) is indicated for sentinel lymph node evaluation
• Stage III (sentinel node positive, palpable regional nodes) • Stage IV (metastatic) • Mucosal, including lip primary • Ocular/orbital primary site	• CT with contrast of Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) **or** PET/CT (CPT®78815 or CPT®78816) • CT Neck with contrast (CPT®70491) is indicated for head or neck primary sites or if palpable lymph nodes are present in the neck • MRI Brain without and with contrast (CPT®70553)
• Primary site of melanoma is unknown and CT Chest and Abdomen/Pelvis are negative	• MRI Abdomen without and with contrast (CPT®74183) and • PET/CT (CPT®78815 or CPT®78816)

ONC-5.3 INITIAL WORK-UP/STAGING (Other Skin Cancers)

Other Skin Cancers	Imaging Study
Body area with unexplained signs or symptoms	• CT with contrast of that body area
Perineural invasion or local regional extension (i.e. bone; deep soft tissue) involvement	One of the following may be approved of the primary site: • MRI without contrast or without and with contrast • CT (contrast as requested)
Skin lesion may be a dermal metastasis from distant primary	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast o PET is indicated if conventional imaging (CT or MRI) is unable to identify a primary site
Squamous cell carcinoma head or neck skin with regional lymphadenopathy	• CT Neck (CPT®70491) and Chest (CPT®71260) with contrast
Merkel Cell carcinoma	• CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • CT with contrast of other involved body area(s) • PET if no metastatic disease identified on conventional imaging • Lymph system imaging (lymphoscintigraphy, CPT®78195) or sentinel lymph node evaluation • Octreotide or MIBG scan (one of CPT®78800, 78801, 78802, 78803, or 78804)

Practice Note: Merkel Cell carcinoma may present as a primary cancer or as a skin metastasis from a noncutaneous primary neuroendocrine carcinoma (i.e., small cell lung cancer), therefore conventional imaging is indicated initially to confirm the absence of metastasis prior to considering PET scan.

ONC-5.4 RESTAGING/RECURRENCE (MELANOMA)

All recurrences should be confirmed histologically, except when excessive morbidity from a biopsy may occur, such as a biopsy requiring craniotomy.

Melanoma	Imaging Study
Patients receiving chemotherapy, with measurable disease	• CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast every 2 cycles (commonly every 6-8 weeks)
All in situ recurrences	• Restaging imaging is not needed after adequate aggressive local therapy (see Surveillance)
Documented or clinically suspected (see top of page regarding biopsy morbidity) recurrence at: • Primary site • In-transit disease • Regional lymph nodes • Metastatic site	• CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast , • MRI Brain without and with contrast (CPT®70553) • PET/CT (CPT®78815 or CPT®78816) if inconclusive conventional imaging or isolated metastatic based on results of conventional imaging, initially
Brain imaging is indicated for: • New discovery of metastatic disease or progression of metastatic disease • Signs or symptoms of CNS disease • If considering Interleukin (IL-2) therapy	• MRI Brain without and with contrast (CPT®70553)

ONC-5.5 RESTAGING/RECURRENCE (OTHER SKIN CANCERS)

All recurrences should be confirmed histologically, except when excessive morbidity from a biopsy may occur, such as a biopsy requiring craniotomy.

Other Skin Cancers	Imaging Study
Recurrence where planned therapy is more extensive than simple wide local excision	• CT with contrast of the primary and recurrent site(s)
Recurrence of Merkel Cell Carcinoma	• CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • Octreotide or MIBG scan (one of CPT®78800, 78801, 78802, 78803, or 78804) • PET if no metastatic disease on any of the previous imaging studies

ONC-5.6 SURVEILLANCE/FOLLOW UP (MELANOMA)

Melanoma	Imaging Study
Stage 0, IA, IB, and IIA Melanomas	• No routine advanced imaging indicated
Stage IIB, IIIA, and IIIB Melanomas	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast every 6 months for 5 years • MRI Brain without and with contrast (CPT 70553) annually for 5 years
Stage IIIC and IV Melanomas	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast every 3 months for 3 years, then every 6 months for 2 years • MRI Brain without and with contrast (CPT 70553) annually for 5 years
Ocular/Orbital Melanomas	• CT Chest (CPT® 71260) and Abdomen with contrast (CPT® 74160) every 6 months for 2 years, then annually for 3 years
Liver metastases treated with focal therapy	• See **ONC-31.2 Liver Metastases**

ONC-5.7 SURVEILLANCE/FOLLOW UP (OTHER SKIN CANCERS)

Other Skin Cancers	Imaging Study
Merkel Cell node positive	• CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast every 6 months for 5 years • Add CT Neck with contrast (CPT®70491) if known prior neck disease or scalp/facial/neck disease
All others	• No routine advanced imaging is indicated

Practice Note:

- For Desmoid Tumors and Dermatofibroma Protuberans (DFST), See: **ONC-12~BONE and SOFT TISSUE SARCOMAS/GIST**
- Melanomas can metastasize in an unpredictable fashion.
- Primary **orbital/ocular melanomas** include arising in the orbit, uveal tract (iris, ciliary body, and choroid), and conjunctiva and tend to metastasize to the liver.
- Primary mucosal melanomas (i.e., gastrointestinal or sinus mucosa) and orbital/ocular melanomas are considered (and should be managed as) Stage III (i.e., node positive) at initial diagnosis
- Advanced imaging is not often needed in Squamous Cell Carcinomas (SqCCa) (of the skin and Basal Cell Carcinomas (BCC); rare exceptions are noted above.
- **Merkel Cell Carcinoma** is an unusual skin cancer with neuroendocrine-like histologic features, which has a high propensity (25%-33%) for regional lymph node spread and occasionally, metastatic spread to lungs.
- PET is not indicated for non-melanomatous skin cancers (Exception: see Merkel Cell Carcinoma above).

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ONC-6~Thyroid Cancer

ONC-6~Thyroid Cancer

ONC-6.1 SUSPECTED/DIAGNOSIS

✓ **See Neck-9.1~Thyroid Imaging** for imaging guidelines for suspected thyroid malignancies

ONC-6.2 INITIAL WORK-UP/STAGING

Follicular, Papillary and Hürthle Cell Carcinomas	Imaging Study
Any one of the following: • Fixation suggested by clinical exam and/or ultrasound, • Substernal or bulky disease • Disease precluding full ultrasound examination	Any one of the following: • MRI Neck without contrast (CPT® 70540) • MRI Neck without and with contrast (CPT®70543) • CT Neck without contrast (CPT®70490) • CT Neck with contrast (CPT®70491) can be approved if contrast study is necessary for complete pre-operative assessment and use of IV contrast will not delay post-operative use of RAI therapy.
Skeletal pain	Any one of the following: • Bone scan (See **ONC-1.3**) • Nuclear Thyroid scan (CPT®78015, 78016, 78018, or 78020)
Suspicious findings on CXR, US, or substernal extension of mass	• CT Chest without contrast (CPT®71250)
All other patients	• Routine preoperative advanced imaging is not indicated

Medullary Thyroid Carcinomas	Imaging Study
All patients with positive lymph nodes or calcitonin level >500 pg/mL	Any or all of the following: • CT Neck with contrast (CPT®70491) • CT Chest with contrast (CPT®71260) • CT Abdomen either with (CPT®74160) or without and with contrast (CPT®74170) Any one of the following: • Bone scan (See **ONC-1.3**) • Octreotide or MIBG scan (CPT®78800, CPT®78801, CPT®78802, CPT®78803, or CPT®78804)
Skeletal pain	• Bone scan (See **ONC-1.3**)
Inconclusive finding on conventional imaging	• PET/CT (CPT® 78815)

Anaplastic Thyroid Carcinomas	Imaging Study
All	Any or all of the following: • CT Neck with contrast (CPT®70491) • CT Chest with contrast (CPT®71260) • CT Abdomen/Pelvis with contrast (CPT®74177) • Bone scan (See **ONC-1.3**)
Skeletal pain	• Bone scan (See **ONC-1.3**)
Inconclusive finding on conventional imaging	• PET/CT (CPT® 78815 or 78816)**

Practice Note:

**PET for initial staging for anaplastic thyroid cancer is currently not recommended before conventional imaging since recommendations for PET are derived from observational studies and clinical trials with other methodological limitations.

ONC-6.3 RESTAGING/RECURRENCE

Follicular, Papillary and Hürthle Cell Carcinomas	Imaging Study
Any of the following: • Recurrence documented by biopsy • Increasing thyroglobulin level without Thyrogen® stimulation • Thyroglobulin level >2 ng/mL or higher than previous after Thyrogen® stimulation • Anti-thyroglobulin antibody present • Evidence of residual thyroid tissue on ultrasound or physical exam after thyroidectomy or ablation	Any or all of the following: • Thyroid Nuclear Scan (CPT®78015, 78016, 78018, or 78020) • CT with contrast of any symptomatic body area • MRI without and with contrast of any symptomatic body area
Any of the following: • Negative radioiodine scan and rising thyroglobulin level • Inconclusive findings on conventional imaging (including I-131 study) – (See Practice Note)	• PET/CT (CPT® 78815)

Practice Note: Patients with measurable metastatic disease that are RAI refractory may be followed with conventional imaging and PET, both of which are reserved for inconclusive findings.

Medullary and Anaplastic Thyroid Carcinomas	Imaging Study
• Medullary carcinoma with elevated calcitonin or CEA, or signs or symptoms of recurrence	Any or all of the following: • CT Neck with contrast (CPT®70491) • CT Chest with contrast (CPT®71260) • CT Abdomen either with (CPT®74160) or without and with contrast (CPT®74170) • Octreotide or MIBG scan (CPT®78800, 78801, 78802, 78803, or 78804)
• Anaplastic carcinoma with signs or symptoms of recurrence	Any or all of the following: • CT Neck with contrast (CPT®70491) • CT Chest with contrast (CPT®71260) • Either CT Abdomen/Pelvis with contrast (CPT®74177) or MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast
• Inconclusive conventional imaging	• PET/CT (CPT® 78815)

ONC-6.4 SURVEILLANCE/FOLLOW UP

Follicular, Papillary and Hürthle Cell Carcinomas	Imaging/Diagnostic Study
All patients	• Neck ultrasound (CPT®76536), chest X-ray, and laboratory studies every 6 months for the first year, then annually • Thyroid Nuclear Scan (CPT®78015, 78016, 78018, or 78020) for node positive and high risk patients, and patients with RAI-avid metastases as per above time frames.

Medullary Carcinomas	Imaging/Diagnostic Study
All patients	• CEA and calcitonin are required for monitoring medullary carcinomas • Routine surveillance imaging is not indicated

Anaplastic Thyroid Carcinomas	Imaging Study
All patients	Every 3 months for 2 years: • CT Neck with contrast (CPT®70491) • CT Chest with contrast (CPT®71260) • CT Abdomen/Pelvis with contrast (CPT®74177)

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ONC-7~Small Cell Lung Cancer

Practice Note:

Patients treated curatively for SCLC are at increased risk for developing a second lung cancer. If new lung nodule is seen on imaging without any evidence of other systemic disease then should follow **CH-16~Solitary Pulmonary Nodule** for work-up of nodule.

- Imaging is presently guided by traditional staging of limited or extensive disease.
- Combined histologies of small and non-small cell are considered small cell lung cancer.
- Extensive stage is either metastatic disease or an extent which cannot be encompassed by a single radiotherapy portal. Limited staging is confined to one side of the chest.

ONC-7.1 Small Cell Lung Cancer (SCLC) Imaging Indications

Indication	Imaging Study
Evaluation of pulmonary nodule or mass	See **ONC-8.2 SUSPECTED/DIAGNOSIS**
Initial staging	Any or all of the following: • CT Chest with contrast (CPT®71260) • CT Abdomen/Pelvis with contrast (CPT®74177) • MRI Brain without and with contrast (CPT®70553) • Bone scan, if PET/CT not being done (See **ONC-1.3**)
Confirm limited stage (non-metastatic) disease if initial staging imaging (CT and MRI) shows disease limited to the thorax	• PET/CT (CPT®78815)
Treatment Response for one of the following: • After every 2 cycles of chemotherapy • Following completion of chemoradiation	Any or all of the following: • CT Chest with contrast (CPT®71260) • CT Abdomen with contrast (CPT®74160) o CT Abdomen/Pelvis with contrast (CPT®74177) may be substituted for known pelvic disease or pelvic symptoms

	• Bone scan (See **ONC-1.3**) • PET is not indicated for evaluation of treatment response in SCLC, but can be considered on a case-by-case basis. These cases should be forwarded for medical director review.
Restaging (suspected recurrence)	Any or all of the following: • CT Chest with contrast (CPT®71260) • CT Abdomen with contrast (CPT®74160) o CT Abdomen/Pelvis with contrast (CPT®74177) may be substituted for known pelvic disease or pelvic symptoms • Brain MRI without and with contrast (CPT®70553) • Bone scan (See **ONC-1.3**) • PET is not indicated for evaluation of recurrent SCLC, but can be considered on a case-by-case basis. These cases should be forwarded for medical director review.
Complete or partial response to initial treatment, if prophylactic cranial irradiation (PCI) is planned.	• MRI Brain without and with contrast (CPT®70553)
Surveillance	• Either CT Chest without (CPT®71250) or with contrast (CPT®71260) every 4 months for first two years, and then annually • For new nodules see: **CH-16 Solitary Pulmonary Nodule**

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ONC-8~Non-Small Cell Lung Cancer

ONC-8~Non-Small Cell Lung Cancer

Non-small cell lung cancer includes adenocarcinoma, squamous cell carcinoma, and large cell neuroendocrine.

ONC-8.1 ASYMPTOMATIC SCREENING

Screening Indications – Non-Medicare	Imaging Study
All criteria below must be met for approval: • Patient has not received a low-dose CT lung screening in less than 12 months, ***and*** • Patient has NO signs or symptoms* suggestive of underlying lung cancer, ***and*** • Patient is able and willing to undergo curative lung surgery, ***and*** • Patient is between 55 and 80 years of age, ***and*** • Patient has at least a 30 pack-year history of cigarette smoking, ***and*** • Currently smokes or quit less than 15 years ago	Low-Dose Chest CT without contrast (CPT® G0297)** ***Code selection is based on individual payer claim payment policy.* ***NOTE:*** *Certain payers' policies may NOT include lung cancer screening. Their coverage policies may take precedence over eviCore guidelines.*
Screening Indications - Medicare	**Imaging Study**
All criteria below must be met for approval: • Patient has not received a low-dose CT lung screening in less than 12 months, ***and*** • Patient has NO signs or symptoms* suggestive of underlying lung cancer, ***and*** • Patient is between 55 and 77 years of age, ***and*** • Patient has at least a 30 pack-year history of cigarette smoking, ***and*** • Currently smokes or quit less than 15 years ago • A written order for LDCT lung cancer screening that documents counseling and shared decision making*	Low-Dose Chest CT without contrast (CPT® G0297)** ***Code selection is based on individual payer claim payment policy.* ***NOTE:*** *Certain payers' policies may NOT include lung cancer screening. Their coverage policies may take precedence over eviCore guidelines.*

*A written order for LDCT lung cancer screening that meets the following criteria:

- For the initial LDCT lung cancer screening service: the beneficiary must receive a written order for LDCT lung cancer screening during a lung cancer screening counseling and shared decision making visit, furnished by a physician [as defined in Section 1861(r)(1) of the Social Security Act (the Act)] or qualified non-physician practitioner (physician assistant, nurse practitioner, or clinical nurse specialist as defined in §1861(aa)(5) of the Act).
- For subsequent LDCT lung cancer screenings: the beneficiary must receive a written order, which may be furnished during any appropriate visit (for example: during the Medicare annual wellness visit, tobacco cessation counseling services, or evaluation and management visit) with a physician (as defined in Section 1861(r)(1) of the Act) or qualified non-physician practitioner (physician assistant, nurse practitioner, or clinical nurse specialist as defined in Section 1861(aa)(5) of the Act).
- A lung cancer screening counseling and shared decision making visit includes the following elements (and is appropriately documented in the beneficiary's medical records):
    - Determination of beneficiary eligibility including age, absence of signs or symptoms of lung disease, a specific calculation of cigarette smoking pack-years; and if a former smoker, the number of years since quitting;
    - Shared decision making, including the use of one or more decision aids, to include benefits, harms, follow-up diagnostic testing, over-diagnosis, false positive rate, and total radiation exposure;
    - Counseling on the importance of adherence to annual LDCT lung cancer screening, impact of comorbidities and ability or willingness to undergo diagnosis and treatment;
    - Counseling on the importance of maintaining cigarette smoking abstinence if former smoker, or smoking cessation if current smoker and, if appropriate, offering additional Medicare-covered tobacco cessation counseling services; and
    - If appropriate, the furnishing of a written order for lung cancer screening with LDCT. Written orders for both initial and subsequent LDCT lung cancer screenings must contain the following information, which must also be documented in the beneficiaries' medical records:
        - Beneficiary date of birth,
        - Actual pack-year smoking history (number);
        - Current smoking status, and for former smokers, the number of years since quitting smoking;
        - Statement that the beneficiary is asymptomatic; and NPI of the ordering practitioner

*Patients that present with the following symptoms are not eligible for screening, rather, they should be considered symptomatic for lung cancer: unexplained cough, hemoptysis, or unexplained weight loss of more than 15 pounds in the past year.

ONC-8.2 SUSPECTED/DIAGNOSIS

Indication	Imaging Study
• Abnormal chest X-ray or clinical suspicion remains high despite a normal chest X-ray in symptomatic patient	• CT Chest without contrast (CPT®71250) *or* • CT Chest with contrast (CPT®71260)
• Pulmonary nodule 8 mm (0.8 cm) to 30 mm (3 cm) seen on CT Chest or MRI Chest o See: **CH-16 Solitary Pulmonary Nodule**	• PET/CT (CPT® 78815) o If Negative: Repeat CT Chest with (CPT®71260) or without contrast (CPT®71250) at 3, 9 and 24 months o If Positive: Qualifies as initial staging PET/CT o If Inconclusive: Anatomic imaging or biopsy, not sequential PET/CT
• Pulmonary mass 31 mm (3.1 cm) or greater seen on CT or MRI	• PET/CT (CPT® 78815) can be approved prior to biopsy if one or more of the following applies: o Resection will be performed instead of biopsy if PET confirms limited disease o Multiple possible biopsy options are present within the chest and PET findings will be used to determine the most favorable biopsy site • Biopsy is indicated prior to PET imaging for all other indications in pulmonary masses ≥31 mm (3.1 cm) in size
Mediastinal/Hilar Mass	See **CH-2~Lymphadenopathy**
Paraneoplastic syndrome suspected	See **ONC-30.3 Paraneoplastic Syndromes**

ONC-8.3 INITIAL WORKUP/STAGING

Indication	Imaging Study
All patients	Any or all of the following: • CT Chest (CPT®71260) with contrast • CT Abdomen (CPT®74160) with contrast o CT Abdomen may be omitted if CT Chest report clearly documents upper abdomen through level of adrenals • Bone scan, if PET/CT not being done (See **ONC-1.3**)
Any of the following: • All Stage I-IIIB disease • Stage IV disease confined to the chest region (pleura/pericardium or solitary site including lung nodules) • Conventional imaging is inconclusive	• PET/CT (CPT®78815) if not already completed prior to histological diagnosis • PET not indicated for metastatic disease outside the chest cavity on CT or MRI, or if malignant pleural/pericardial effusion present (see **Practice Note** below)
Any of the following: • All Stage II-IV disease • Stage I disease and considering surgical resection as primary therapy	• MRI Brain without and with contrast (CPT®70553)
Superior sulcus (Pancoast) tumor suspected	Any or all of the following: • MRI Chest without and with contrast (CPT®71552) • MRI Cervical spine without and with contrast (CPT®72156) • MRI Thoracic spine without and with contrast (CPT®72157)

Practice Note:

- PET for initial staging is not generally indicated for metastatic disease, pleural/pericardial effusion, or for multiple sites that are located outside the chest cavity, when found on conventional imaging (i.e., liver, bone and adrenal mets, etc.).

- PET may be considered to confirm solitary focus of metastatic disease (i.e., brain or adrenal) if being considered for an aggressive surgical management.

ONC-8.4 RESTAGING/RECURRENCE

Indication	Imaging Study
Stage I or II patients who undergo definitive local treatment with surgery, radiation, or radiosurgery	• Restaging imaging is not indicated. See Surveillance **ONC-8.5 SURVEILLANCE/FOLLOW-UP**
Measurable disease, undergoing active treatment	Any or all of the following every 2 cycles: • CT Chest with contrast (CPT®71260) • CT Abdomen with contrast (CPT®74160) o CT Abdomen/Pelvis with contrast (CPT®74177) may be substituted for known pelvic disease or pelvic symptoms • MRI Brain without and with contrast (CPT®70553) for measurable brain metastases being treated with systemic therapy
Any of the following: • Locally advanced (Stage III, non-metastatic, unresectable) • Inoperable tumor if chemotherapy or chemoradiation was the initial treatment modality • Inadequately resected disease • Suspected recurrence	Any or all of the following: • CT Chest with contrast (CPT®71260) • CT Abdomen with contrast (CPT®74160) o CT Abdomen/Pelvis with contrast (CPT®74177) may be substituted for known pelvic disease or pelvic symptoms
Determine resectability following neo-adjuvant therapy	• MRI Chest without and with contrast (CPT®71552)
Any of the following: • Newly identified abnormalities localized to chest cavity (see **CH-16~Solitary Pulmonary Nodule** for new nodule evaluation) on	• PET/CT (CPT® 78815) • PET/CT is not indicated if new findings are obviously metastatic disease

conventional imaging • Inconclusive findings conventional imaging • To differentiate tumor from radiation scar/fibrosis	
Any of the following: • Following a demonstrated adequate response to neoadjuvant therapy if intracranial disease will preclude surgery • Documented recurrence/progression • New or worsening neurological signs or symptoms	• MRI Brain without and with contrast (CPT®70553)

ONC-8.5 SURVEILLANCE/FOLLOW-UP

Indication	Study
All patients	• CT Chest with (CPT®71260) or without contrast (CPT®71250) every 6 months for 2 years, then CT Chest without contrast (CPT®71250) annually
New lung nodule	See **CH-16~Solitary Pulmonary Nodule**

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ONC-9~Esophageal Cancer

ONC-9~Esophageal Cancer

ONC-9.1 SUSPECTED/DIAGNOSIS

✓ See **NECK-3~DYSPHAGIA** for imaging guidelines for evaluation of suspected esophageal malignancy

Practice Note:

Clinicians must describe esophageal cancer by cell type and in which third of the esophagus they occur.

- Cancers of the upper and middle third are usually squamous cell and are highly associated with tobacco and alcohol abuse.
- Cancers of the gastroesophageal (GE) junction are treated as lower third cancers.
    - Lower third cancers are usually adenocarcinomas; 62% of these arise in the setting of Barrett's esophagus, a condition associated with high body mass index (BMI).

ONC-9.2 INITIAL WORKUP/STAGING

Diagnosis	Imaging Study
Biopsy proven	• CT Chest and Abdomen with contrast (CPT®71260 and CPT®74160) • CT Abdomen/Pelvis with contrast (CPT® 74177) may be approved instead of CT Abdomen if there are pelvic signs or symptoms
Upper 1/3 or neck mass	• CT Neck with contrast (CPT®70491) for upper 1/3 primary and/or neck mass
Prior to start of neoadjuvant therapy in preparation for surgery and no evidence of metastatic disease by conventional imaging	• PET/CT (CPT®78815)

ONC-9.3 RESTAGING/RECURRENCE

Indication	Imaging Study
After primary chemoradiation therapy prior to surgery (post-surgical resection see surveillance **ONC-9.4 SURVEILLANCE/FOLLOW-UP**)	• CT Chest (CPT®71260) and Abdomen (CPT®74160) with contrast
• If conventional imaging is inconclusive ***or*** • Salvage surgical candidate with recurrence and no metastatic disease documented by conventional imaging	• PET/CT (CPT®78815) o PET imaging can be done as early as 6 weeks after completion of XRT if recent CT findings are inconclusive and PET findings will alter immediate care decision making
If signs or symptoms of recurrence; biopsy proven on follow-up endoscopy or recurrence suggested by other imaging (i.e. CXR or barium swallow)	• CT Chest (CPT®71260) and Abdomen (CPT®74160) with contrast
If previously involved or new signs or symptoms	• CT Pelvis with contrast (CPT®72193) and/or CT Neck with contrast (CPT®70491)

ONC-9.4 SURVEILLANCE/FOLLOW-UP

Indication	Imaging Study
Stage 0-I disease	• No routine advanced imaging indicated
Stage II-III disease	• CT Chest (CPT®71260) and Abdomen (CPT®74160) with contrast every 6 months for 3 years
Stage IV disease	• See **ONC-1.2 Phases of Oncology Imaging and General Phase-Related Considerations**

Practice Note: Surveillance imaging for esophageal cancer is controversial and evidence in the peer-reviewed literature is lacking regarding any clinical benefit.

Given the current literature, the above surveillance imaging recommendations are clinically appropriate.

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ONC-10~Other Thoracic Tumors

ONC-10~Other Thoracic Tumors

ONC-10.1 Malignant Pleural Mesothelioma—SUSPECTED/DIAGNOSIS

✓ See **CH-9~Asbestos Exposure** for imaging guidelines for evaluation of suspected mesothelioma

ONC-10.2 Malignant Pleural Mesothelioma—INITIAL WORKUP/STAGING

Diagnosis	Imaging Study
Cytologically or pathologically proven	• CT Chest (CPT®71260) and Abdomen (CPT®74160) with contrast • CT Abdomen/Pelvis with contrast (CPT® 74177) may be approved instead of CT Abdomen if there are pelvic signs or symptoms • PET/CT (CPT®78815) if no evidence of metastatic disease or inconclusive conventional imaging
Preoperative planning	• MRI Chest without and with contrast (CPT®71552)

ONC-10.3 Malignant Pleural Mesothelioma—RESTAGING

Indication	Imaging Study
Signs or symptoms of suspecting recurrence	• CT Chest (CPT®71260) and Abdomen (CPT®74160) with contrast • CT Abdomen/Pelvis with contrast (CPT® 74177) may be approved instead of CT Abdomen if there are pelvic signs or symptoms
Treatment with chemotherapy	Every 2 cycles: • CT Chest (CPT®71260) and Abdomen (CPT®74160) with contrast • CT Abdomen/Pelvis with contrast (CPT® 74177) may be approved instead of CT Abdomen if there are pelvic signs or symptoms • Following induction chemotherapy prior to surgical resection, PET/CT (CPT®78815) if no evidence of metastatic disease
Inconclusive Chest CT	• MRI Chest without and with contrast (CPT®71552)

ONC-10.4 Malignant Pleural Mesothelioma—SURVEILLANCE

Indication	Imaging Study
All	CT Chest with contrast (CPT®71260) and previously involved regions every 3 months for 2 years, then annually for life.

ONC-10.5 THYMOMA and THYMIC CARCINOMA—SUSPECTED/DIAGNOSIS

✓ See **CH-21~Mediastinal Mass** for imaging guidelines for evaluation of suspected thymic malignancies

ONC-10.6 THYMOMA and THYMIC CARCINOMA— INITIAL WORKUP/STAGING

Diagnosis	Imaging Study
Encapsulated or invasive limited disease	• CT Chest with contrast (CPT®71260)
Extensive mediastinal involvement on Chest CT	• CT Abdomen with contrast (CPT®74160) • CT Neck with contrast (CPT®70491)
Inconclusive finding on CT	One of the following: • Octreotide scan (CPT®78800, 78801, 78802, 78803, or 78804) • PET/CT (CPT®78815) • MRI Chest without and with contrast (CPT® 71552)
Preoperative planning	• MRI Chest without and with contrast (CPT®71552)
Thymic Carcinomas	Image according to **ONC-8~Non-Small Cell Lung Cancer**

ONC-10.7 THYMOMA and THYMIC CARCINOMA—RESTAGING

Indication	Study
Adjuvant therapy following surgical resection	• Follow surveillance imaging
For suspected recurrence	• CT Chest with contrast (CPT®71260)
Recurrence with extensive mediastinal involvement on chest CT	• CT Abdomen with contrast (CPT®74160) • CT Neck with contrast (CPT®70491)
Thymic carcinomas	See **ONC-8 Non-Small Cell Lung Cancer**
Inconclusive finding on CT	One of the following: • Octreotide scan (CPT®78800, 78801, 78802, 78803, or 78804) • PET/CT (CPT®78815) • MRI Chest without and with contrast (CPT® 71552)
Extensive disease on chemotherapy	• CT Neck (CPT®70491), Chest (CPT®71260), and Abdomen (CPT®74160) with contrast, every 2 cycles of therapy • Following induction chemotherapy prior to surgical resection, PET/CT (CPT®78815) if no evidence of metastatic disease

ONC-10.8 THYMOMA and THYMIC CARCINOMA—SURVEILLANCE

Indication	Study
Thymoma	• CT Chest with contrast (CPT®71260) and previously involved regions every 6 months for 2 years, then annually for next 10 years
Thymic carcinomas	• CT Chest with contrast (CPT®71260) every 6 months for 2 years and then annually for 5 years

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ONC-11~BREAST CANCER

ONC-11~BREAST CANCER

ONC-11.1 SUSPECTED/DIAGNOSIS

✓ See **CH-25.6 Breast MRI Indications** for imaging guidelines for evaluation of suspected breast cancer

ONC-11.2 INITIAL WORKUP/STAGING

Initial Work-up/Staging	Imaging Study
Biopsy proven and/or adenocarcinoma in axillary lymph node	• Bilateral breast MRI (CPT®77059)
Operable disease (stage I and II)	• No advanced imaging needed • For planned sentinel lymph node biopsy: Lymph system imaging (lymphoscintigraphy, CPT®78195)
Clinical Stage III and Stage IV disease, prior to neoadjuvant therapy for stage III disease or higher, or for signs or symptoms of systemic disease	Any or all of the following: • CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • Bone scan (See **ONC-1.3**)
Inconclusive CT and bone scan	• PET/CT (CPT® 78815)
Bone pain	• Bone scan(See **ONC-1.3**) o See **Practice Note** below o See: **ONC-31.5 Bone (including Vertebral) Metastases** o See: **ONC-31.6 Spinal Cord Compression**

***PET is not indicated for the following:**

- o Non-invasive breast cancers
- o Prior to lymph node sampling in a patient with clinical Stage I, II, or operable IIIA disease
- o Obvious multi-organ metastatic disease is present on CT or MRI

Practice Note:

- Bone scan has a high concordance rate with PET for detecting bone metastases.
- Scintimammography and Breast Specific Gamma Imaging (BSGI) are considered experimental and investigational.

ONC-11.3 RESTAGING/RECURRENCE

Indication	Imaging Study
Any of the following: • Biopsy proven breast or chest wall recurrence • Suspicion of recurrence with inconclusive mammogram and/or ultrasound (BIRADS 0) • Mammogram and ultrasound conflicts with physical exam • End of planned neoadjuvant chemotherapy to determine resectability	• Bilateral MRI Breast without and with contrast (CPT®77059)
Any of the following: • Elevated LFTs • Rising tumor markers • Signs or symptoms of recurrence • Biopsy proven recurrence	Any or all of the following: • CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • Bone scan (See **ONC-1.3**)
Treatment response in patients with metastatic disease and measurable disease on imaging	Any or all of the following for patients being treated with ***chemotherapy*, every 2 cycles**: • CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • Bone scan (See **ONC-1.3**) • MRI Brain without and with contrast (CPT® 70553) for patients receiving systemic treatment for brain metastases Any or all of the following for patients being treated with ***endocrine/hormonal* therapy, every 3 months**: • CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • Bone scan (See **ONC-1.3**)

Inconclusive CT, MRI, and/or bone scan for suspected recurrence, and further characterization is needed to make treatment decisions	• PET/CT (CPT® 78815)
Any of the following: • Assessing for residual disease after surgery • Assessing response to neoadjuvant chemotherapy • After lumpectomy or mastectomy, prior to adjuvant therapy	• No advanced imaging • Neither PET nor CT are indicated to assess response to neoadjuvant chemotherapy
• Bone metastasis as the only site of stage IV disease (excluding brain mets) and a prior bone scan has not been performed for serial comparison	• PET/CT (CPT® 78815)

ONC-11.4 SURVEILLANCE/FOLLOW UP

Indication	Imaging Study
Metastatic disease on a break from therapy with persistent measurable disease	Any or all of the following, every 3 months: • CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • Bone scan (See **ONC-1.3**)
Asymptomatic non-metastatic disease	• No advanced imaging indicated
Breast imaging surveillance, including after bilateral mastectomy	• See **CH-25.6 Breast MRI Indications** for imaging guidelines

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ONC-12~BONE and SOFT TISSUE SARCOMAS/GIST

ONC-12~BONE and SOFT TISSUE SARCOMAS/GIST

ONC-12.1 BONE AND SOFT TISSUE SARCOMA GENERAL CONSIDERATIONS

Sarcomas are tumors of mesenchymal origin, classified as high-, intermediate-, and low-grade tumors (sometimes described as "spindle cell" cancers). They can arise in any bony, cartilaginous, smooth muscle, skeletal muscle, or cardiac muscle tissue.

Sarcomas occur in both adult and pediatric patients, but some are more common in one age group than the other. Unless specified below, patients age ≥18 years old should be imaged according to this guideline section. Exceptions include:

- Rhabdomyosarcoma patients of all ages should be imaged according to guidelines in **PEDONC-8.2 Rhabdomyosarcoma**
- Osteogenic sarcoma patients of all ages should be imaged according to guidelines in **PEDONC-9.3 Osteogenic Sarcoma (OS)**
- Ewing sarcoma and Primitive Neuroectodermal Tumor patients of all ages should be imaged according to guidelines in **PEDONC-9.4 Ewing Sarcoma and Primitive Neuroectodermal Tumors (ESFT).**
- Chondrosarcoma patients of all ages should be imaged according to guidelines in **ONC-12.6 BONE SARCOMAS—INITIAL WORKUP/STAGING**
- Chordoma patients of all ages should be imaged according to guidelines in **ONC-12.6 BONE SARCOMAS—INITIAL WORKUP/STAGING**
- Giant cell tumor of bone and enchondroma patients of all ages should be imaged according to guidelines in **ONC-12.5 GASTROINTESTINAL STROMAL TUMOR (GIST)**
- Other benign bone tumor patients of all ages should be imaged according to guidelines in **PEDONC-9.2 Benign Bone Tumors**
- Kaposi's sarcoma patients of all ages should be imaged according to guidelines in **ONC-31.10 Kaposi's Sarcoma**

ONC-12.2 SOFT TISSUE SARCOMAS-INITIAL WORKUP/STAGING

Indication	Imaging Study
Retroperitoneal or intraabdominal primary site	Any or all of the following: • CT Chest with (CPT®71260) or without contrast (CPT®71250) • Either CT Abdomen/Pelvis with contrast (CPT®74177) or MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast
Any of the following: • Extremity or trunk primary site • Head or neck primary site • Angiosarcoma • Alveolar soft part sarcoma, • Clear cell sarcoma • Epithelioid sarcoma • Hemangiopericytoma • Other histologies documented to have propensity for lymphatic spread and deep-seated tumors	Any or all of the following: • MRI without and with contrast of involved area • CT Chest with (CPT®71260) or without contrast (CPT®71250)
Any of the following: • Angiosarcoma • Alveolar soft part sarcoma • Clear cell sarcoma • Epithelioid sarcoma • Hemangiopericytoma • Leiomyosarcoma • Other histologies documented to have propensity for lymphatic spread and deep-seated tumors	Any or all of the following: • MRI without and with contrast of involved area • CT Chest with (CPT®71260) or without contrast (CPT®71250) • Either CT Abdomen/Pelvis with contrast (CPT®74177) or MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast
Myxoid round cell liposarcoma	Any or all of the following: • MRI without and with contrast of involved area • CT Chest with (CPT®71260) or without contrast (CPT®71250) • Either CT Abdomen/Pelvis with contrast (CPT®74177) or MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast • MRI Cervical/Thoracic/Lumbar spine without and with contrast (CPT®72156,

	72157, and 72158)
Any of the following: • Angiosarcoma • Alveolar soft part sarcoma • All patients with signs/symptoms of brain metastases	• MRI Brain without and with contrast (CPT®70553)
Any of the following: • Grade of tumor in doubt following biopsy • Conventional imaging suggests solitary metastasis amenable to surgical resection • Planning neoadjuvant therapy to assist in assessing response to therapy prior to surgical resection for tumors >3cm	• PET/CT (CPT® 78815 or 78816)
Desmoid Tumors	One of the following: • CT without contrast or with contrast of the affected body part • MRI without contrast or without and with contrast of the affected body part • Imaging of lung, lymph node, and metastatic site for these tumors is not indicated
Dermatofibrosarcoma Protuberans (DFSP)	One of the following: • CT without contrast or with contrast of the affected body part • MRI without contrast or without and with contrast of the affected body part • CT Chest with (CPT®71260) or without contrast (CPT®71250 for pulmonary symptoms, abnormal chest X-ray, or sarcomatous differentiation

ONC-12.3 SOFT TISSUE SARCOMAS—RESTAGING/RECURRENCE

Indication	Imaging Study
Any of the following: • After preoperative radiotherapy • After surgical resection • After adjuvant radiotherapy	• MRI without and with contrast of affected body area • CT without contrast or with contrast can be added if demonstrated bone involvement • Chest or lymph node imaging is not indicated if no abnormality on previous imaging
Any of the following: • Differentiate tumor from radiation or surgical fibrosis • Determine response to neoadjuvant therapy • Confirm oligometastatic disease prior to curative intent surgical resection	• PET/CT (CPT® 78815 or 78816)
Chemotherapy response for patients with measurable disease	• CT with contrast or MRI without and with contrast of affected body area every 2 cycles
Local recurrence suspected	• Repeat all imaging for initial workup of specific histology and/or primary site
Preoperative planning prior to resection	Any or all of the following: • MRI without contrast or without and with contrast of involved area • CT (contrast as requested) of involved area
Dermatofibrosarcoma Protuberans (DFSP)	One of the following: • CT without contrast or with contrast of the affected body part • MRI without contrast or without and with contrast of the affected body part • CT Chest with (CPT®71260) or without contrast (CPT®71250 for pulmonary symptoms, abnormal chest X-ray, or sarcomatous differentiation

ONC-12.4 SOFT TISSUE SARCOMAS—SURVEILLANCE/FOLLOW UP

Indication	Imaging Study
Retroperitoneal/intraabdominal primary site	Any or all of the following every 3 months for 2 years, then every 6 months for 2 more years, then annually: • CT Chest with (CPT®71260) or without contrast (CPT®71250) • CT Abdomen/Pelvis with contrast (CPT®74177) • CT with contrast or MRI without and with contrast of any other involved body areas
Extremity, trunk, or Head/Neck primary site, low grade Stage I disease	Any or all of the following every 6 months for 2 years, then annually until year 10: • Chest X-ray o CT Chest with (CPT®71260) or without contrast (CPT®71250) is indicated for new findings on CXR or new/worsening pulmonary signs/symptoms • CT with contrast, MRI without contrast, or MRI without and with contrast of primary site if primary site not easily evaluated by physical exam
Extremity, trunk, or Head/Neck primary site, Stages II-IV disease.	Any or all of the following every 3 months for 2 years, then every 6 months for 2 more years, then annually : • CT with contrast, MRI without contrast, or MRI without and with contrast of primary site • CT Chest with (CPT®71260) or without contrast (CPT®71250) • CT with contrast or MRI without and with contrast of any other involved body areas
Desmoid tumors	One of the following every 6 months for 3 years, then annually: • CT without contrast or with contrast of the affected body part • MRI without contrast or without and with contrast of the affected body part
Dermatofibrosarcoma	• No routine imaging unless clinical

Protuberans	signs/symptoms of recurrence

ONC-12.5 GASTROINTESTINAL STROMAL TUMOR (GIST)

Indication	Imaging Study
Suspected/Diagnosis	• CT Abdomen/Pelvis with contrast (CPT®74177)
Initial Workup/Staging	• CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast • MRI Abdomen without and with contrast (CPT®74183) is indicated for evaluation of liver lesions that are equivocal on CT imaging or for preoperative assessment of liver • PET is indicated for evaluation of inconclusive findings on conventional imaging
Restaging/Recurrence	• CT Abdomen/Pelvis with contrast (CPT®74177) • CT Chest with contrast (CPT®71260) if prior evidence of chest disease or signs or symptoms of chest disease • PET is indicated for evaluation of inconclusive findings on conventional imaging
Treatment Response	• CT Abdomen/Pelvis with contrast (CPT®74177) • CT Chest with contrast (CPT®71260) if prior evidence of chest disease or signs or symptoms of chest disease • PET is indicated for evaluation of inconclusive findings on conventional imaging
Surveillance/Follow-up	• CT Abdomen/Pelvis with contrast (CPT®74177) every 6 months for 5 years, then annually

Practice Note:

GISTs are mesenchymal neoplasms of the gastrointestinal (GI) tract, mostly found in the stomach and upper small bowel, commonly metastasizing to the liver and abdominal cavity, and primarily treated with surgery.

Use of the tyrosine kinase inhibitors (TKI), Imatinib mesylate (Gleevec®) and Sunitinib malate (Sutent®), has substantially changed imaging and treatment paradigms for GIST.

ONC-12.6 BONE SARCOMAS—INITIAL WORKUP/STAGING

Indication	Imaging Study
Chondrosarcoma	Any or all of the following: • MRI without contrast or without and with contrast of involved area • CT (contrast as requested) of involved area CT Chest with (CPT®71260) or without contrast (CPT®71250)
Chordoma	Any or all of the following: • MRI without contrast or without and with contrast of involved area • CT (contrast as requested) of involved area CT Chest with (CPT®71260) or without contrast (CPT®71250) • CT Abdomen/Pelvis with contrast (CPT®74177) • Bone scan (See **ONC-1.3**) • PET may be approved for inconclusive conventional imaging.

ONC-12.7 BONE SARCOMAS—RESTAGING/RECURRENCE

Indication	Imaging Study
Chondrosarcoma	Any or all of the following, after completion of radiotherapy or every 2 cycles of chemotherapy: • MRI without contrast or without and with contrast of involved area • CT (contrast as requested) of involved area CT Chest with (CPT®71260) or without contrast (CPT®71250)
Chordoma	Any or all of the following, after completion of radiotherapy or every 2 cycles of chemotherapy: • MRI without contrast or without and with contrast of involved area • CT (contrast as requested) of involved area • Bone scan (See **ONC-1.3**) • PET may be approved for inconclusive conventional imaging

ONC-12.8 BONE SARCOMAS—SURVEILLANCE/FOLLOW UP

Indication	Imaging Study
Low Grade Chondrosarcoma	Any or all of the following every 6 months for 2 years, then annually : • Plain x-ray of primary site o MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms. • Chest x-ray o CT Chest with (CPT®71260) or without contrast (CPT®71250) for new findings on CXR, or new/worsening signs/symptoms.
High Grade Chondrosarcoma	Any or all of the following every 6 months for 5 years, then annually : • Plain x-ray of primary site o MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms. • Chest x-ray o CT Chest with (CPT®71260) or without contrast (CPT®71250) for new findings on CXR, or new/worsening signs/symptoms
Chordoma	• CT Abdomen with contrast (CPT® 74160) annually until year 10. Any or all of the following every 6 months for 5 years, then annually until year 10: • Plain x-ray of primary site o MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms. • Chest x-ray o CT Chest with (CPT®71260) or without contrast (CPT®71250) for new findings on CXR, or new/worsening signs/symptoms

ONC–12.9 BENIGN BONE TUMORS—GENERAL CONSIDERATIONS

- Variety of diagnoses, including osteoid osteochondroma, chondroblastoma, desmoplastic fibroma, Paget's disease, osteoid osteoma and others
- Plain X-ray appearance is diagnostic for many benign bone tumors and advanced imaging is generally unnecessary except for preoperative planning
- MRI without and with contrast is the primary modality for advanced imaging of bone tumors, and can be approved to help narrow differential diagnoses and determine whether biopsy is indicated
- Some benign bone tumor types carry a risk of malignant degeneration over time, but routine advanced imaging surveillance has not been shown to improve outcomes for these patients
- MRI without and with contrast can be approved to evaluate new findings on plain X-ray new/worsening clinical symptoms not explained by a recent plain X-ray
- There are no data to support the use of PET in the evaluation of benign bone tumors, and PET requests should not be approved without biopsy confirmation of a malignancy

ONC-12.10 BENIGN BONE TUMORS—INITIAL WORKUP/STAGING

Indication	Imaging Study
Giant Cell Tumor of Bone (GCTB)	Any or all of the following: • MRI without contrast or without and with contrast of involved area • CT (contrast as requested) of involved area • CT Chest with (CPT®71260) or without contrast (CPT®71250) • Bone scan (See **ONC-1.3**)
Enchondroma	• MRI without contrast or without and with contrast of primary site

ONC-12.11 BENIGN BONE TUMORS—RESTAGING/RECURRENCE

Indication	Imaging Study
Giant Cell Tumor of Bone (GCTB)	Any or all of the following, after completion of radiotherapy or every 2 cycles of chemotherapy: • MRI without contrast or without and with contrast of involved area • CT (contrast as requested) of involved area • Bone scan (See **ONC-1.3**)
Enchondroma	• Generally no indication for this benign tumor unless symptoms

ONC-12.12 BENIGN BONE TUMORS—SURVEILLANCE/FOLLOW UP

Indication	Imaging Study

Giant Cell Tumor of Bone (GCTB)	Any or all of the following every 6 months for 2 years, then annually until year 10:
	• Plain x-ray of primary site
	  o MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms.
	• Chest x-ray
	  o CT Chest with (CPT®71260) or without contrast (CPT®71250) for new findings on CXR, or new/worsening signs/symptoms.

Enchondroma	• Plain films of primary site

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ONC-13~Pancreatic Cancer

ONC-13~Pancreatic Cancer

This guideline refers only to adenocarcinoma of the exocrine pancreas, which accounts for over 90% of pancreatic malignancies.

Endocrine and carcinoid tumors of the pancreas are not included in this guideline; See: **ONC-15~Neuroendocrine Cancers and Adrenal Tumors**

These guidelines or **ONC-14~Upper GI Cancers** guidelines may be used for cancer of the Ampulla of Vater, duodenum, or common bile duct.

ONC-13.1 SCREENING STUDIES for Pancreatic Cancer

Indications	Imaging Study
Age 40, or ten years earlier than the youngest affected family member, with any of the risk factors below*	**INITIAL/BASELINE:** • Endoscopic ultrasound (EUS) • CT Abdomen (CPT®74160) with or without and with contrast (CPT®74170) or MRI Abdomen without and with contrast (CPT®74183) **FOLLOW-UP:** • EUS every year • CT Abdomen (CPT®74160) with or without and with contrast (CPT®74170) or MRI Abdomen without and with contrast (CPT®74183) annually

***Increased risk factors for pancreatic cancer:**

- Family history of familial cancer syndromes including Peutz-Jeghers Syndrome, Hereditary Breast and Ovarian Cancer Syndrome, Familial Atypical Multiple Mole-Melanoma Syndrome (FAMMM), Familial Adenomatous Polyposis
- Hereditary pancreatitis
- Familial pancreatic cancer (two or more first degree relatives or any combination of 3 or more first/second degree relatives)
- Hereditary pancreatic neuroendocrine tumors (Multiple Endocrine Neoplasia Type I [MEN-1], von Hippel-Lindau disease, neurofibromatosis Type 1, tuberous sclerosis)

ONC-13.2 SUSPECTED/DIAGNOSIS

Indication	Imaging Study
For any suspected symptoms only	• Ultrasound (CPT®76700 or CPT®76705)
Symptoms and abnormal lab(s), or physical exam findings, or abnormal ultrasound/ERCP	• CT Abdomen without and with contrast (CPT®74170)
No resection or biopsy after abdomen CT	• Interval transabdominal ultrasound (CPT®76705) or endoscopic ultrasound (preferred).
Preoperative studies for potentially resectable tumors without confirmed histologic diagnosis	• See **ONC-13.3 INITIAL WORKUP/STAGING**

ONC-13.3 INITIAL WORKUP/STAGING

Diagnosis	Imaging Study
All patients	• CT Chest with contrast (CPT®71260) • CT Abdomen/Pelvis with (CPT®74177) or without and with contrast or (CPT®74178) • EUS
Preoperative planning or CT insufficient to determine resectability	• MRI Abdomen without and with contrast (CPT®74183)
No evidence of metastatic disease on CT or MRI	• PET/CT (CPT® 78815)

ONC-13.4 RESTAGING/RECURRENCE

Indication	Imaging Study
After neoadjuvant chemoradiation and any suspected recurrence	• CT Chest with contrast (CPT®71260) • CT Abdomen/Pelvis with (CPT®74177) or without and with contrast (CPT®74178) • CT with contrast of other involved or symptomatic areas • PET/CT (CPT® 78815) for inconclusive conventional imaging post chemoradiation (if given as definitive/curative therapy)
Unresectable disease or metastatic disease on chemotherapy	Every 2 cycles of treatment (commonly every 6-8 weeks): • CT Chest with contrast (CPT®71260) • CT Abdomen/Pelvis with (CPT®74177) or without and with contrast (CPT®74178) • CT with contrast of other involved or symptomatic areas
Unexplained elevated liver enzymes or inconclusive recent CT abnormality	• MRI Abdomen without and with contrast(CPT®74183)
If complete surgical resection was initial therapy	• See **ONC-13.5 SURVEILLANCE/FOLLOW UP** for surveillance imaging

ONC-13.5 SURVEILLANCE/FOLLOW UP

Indication	Imaging Study
All patients	Every 3 months for 2 years, then annually: • CT Abdomen/Pelvis with contrast (CPT®74177) • Chest X-ray

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ONC-14~Upper GI Cancers

ONC-14~Upper GI Cancers

ONC-14.1 Hepatocellular Carcinoma (HCC)/Biliary Tumors—General Considerations

- Imaging studies in Liver Transplantation – See: **AB-42.4~Transplant** in the Abdomen Imaging Guidelines.—this is in HCC/biliary section

ONC-14.2 HCC and Biliary Tumors—SUSPECTED/DIAGNOSIS

- See **AB-26 Cirrhosis and Liver Screening for Hepatocellular Carcinoma** and **AB-29 Liver Lesion Characterization**

ONC-14.3 HCC and Biliary Tumors—INITIAL WORKUP/STAGING

Diagnosis	Imaging Study
All patients	• CT Chest with contrast (CPT®71260) One of the following: • CT Abdomen with (CPT®74160) • CT Abdomen without and with contrast (CPT®74170) • MRI Abdomen (CPT®74183) without and with contrast
For primary biliary carcinoma (no HCC) *if* no evidence of metastatic disease by conventional imaging, and determining if patient is a surgical candidate	• PET/CT (CPT® 78815)

Practice Note:
Biopsy not required for hepatocellular carcinoma (HCC). Liver lesion with elevated AFP (>20) is adequate for imaging.

ONC-14.4 HCC and Biliary Tumors—RESTAGING/RECURRENCE

Indication	Imaging Study
After initial therapy and any suspected recurrence	• CT Abdomen with contrast (CPT®74160), CT Abdomen without and with contrast (CPT®74170), or MRI Abdomen without and with contrast (CPT®74183) • CT Chest with contrast (CPT®71260) for known disease or new signs/symptoms
New liver lesion(s) and primary site controlled	• CT Abdomen (CPT®74170) or MRI Abdomen without and with contrast (CPT®74183) • CT Chest with contrast (CPT®71260)
Restaging: HCC treated with embolization	See **ONC-31.2 Liver Metastases** for imaging time frames

ONC-14.5 HCC and Biliary Tumors—SURVEILLANCE/FOLLOW UP

Indication	Imaging Study
Hepatocellular Carcinomas – post surgical resection (for HCC primarily treated with embolization see (Onc-31.2)	One of the following, every 3 months for 2 years, then annually: • CT Abdomen with contrast (CPT®74160) • CT Abdomen without and with contrast (CPT®74170) • MRI Abdomen without and with contrast (CPT®74183)
Biliary Tract	• CT Abdomen with contrast (CPT®74160) every 6 months for 2 years, then annually
If unable to perform CT (due to contrast allergy or renal insufficiency)	• MRI Abdomen without and with contrast (CPT®74183)

ONC-14.6 GASTRIC CANCERS—INITIAL WORKUP/STAGING

Diagnosis	Imaging Study
All patients	• CT Chest with contrast (CPT®71260) One of the following: • CT Abdomen/Pelvis with contrast (CPT®74177) • CT Abdomen/Pelvis without and with contrast (CPT®74178)
• Gastric cancer ≥ T2 or higher with no metastatic disease by conventional imaging	• PET/CT (CPT® 78815)

ONC-14.7 GASTRIC CANCERS—RESTAGING/RECURRENCE

Indication	Imaging Study
After initial therapy and any suspected recurrence	• CT Abdomen with contrast (CPT®74160), CT Abdomen without and with contrast (CPT®74170), or MRI Abdomen without and with contrast (CPT®74183) • CT Chest with contrast (CPT®71260) for known disease or new signs/symptoms
New liver lesion(s) and primary site controlled	• CT Abdomen (CPT®74170) or MRI Abdomen without and with contrast (CPT®74183) • CT Chest with contrast (CPT®71260)
Gastric cancer after neoadjuvant therapy for presumed surgically resectable disease or post curative chemoradiation being treated without surgery	• CT Chest (CPT®71260) and Abdomen/Pelvis with contrast (CPT®74177)
Inconclusive findings on conventional imaging	• PET/CT (CPT® 78815)

ONC-14.8 GASTRIC CANCERS- SURVEILLANCE/FOLLOW UP

Indication	Imaging Study
All patients	• No routine imaging unless clinical signs/symptoms of recurrence

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ONC-15~Neuroendocrine Cancers and Adrenal Tumors

ONC-15~Neuroendocrine Cancers and Adrenal Tumors

ONC-15.1 GENERAL CONSIDERATIONS

- This guideline includes carcinoid and endocrine tumors of the pancreas such as insulinoma, glucagonoma, VIPoma, gastrinoma, and others as well as catecholamine-secreting tumors of the adrenal such as pheochromocytoma, paraganglioma, adrenocortical carcinoma, and others.
- Neuroblastoma, ganglioneuroblastoma, and ganglioneuroma occurring in adults should be imaged according to **PEDONC-6~Neuroblastoma**
- Also see **AB-15~Zollinger-Ellison Syndrome** in the Abdomen Imaging Guidelines
- Many are associated with Multiple Endocrine Neoplasia (MEN) familial syndromes. – See **PEDONC-2.8 Multiple Endocrine Neoplasias (MEN)** for screening recommendations Gastrointestinal/pancreatic neuroendocrine tumors encompass a broad range of tumors including, but not limited to: carcinoid; nonfunctioning pancreatic tumors and functioning pancreatic tumors (carcinoid; gastrinoma; insulinoma; glucagonoma; VIPoma; somatostatinoma)
- For neuroendocrine tumor of unknown primary follow guidelines in **ONC-31.7 Carcinoma of Unknown Primary Site**
- For high grade neuroendocrine tumors of either GI/pancreatic primary or unknown primary origin refer to **ONC-31.8 Extrathoracic Small Cell Carcinoma**
- For primary lung or thymus carcinoid tumors refer to small cell lung cancer guidelines (**ONC-7~Small Cell Lung Cancer**)
- Octreotide scintigraphy uses the somatostatin analog [^{111}In-DTPA]-octreotide and some references refer to this study as a somatostatin scintigraphy study

ONC-15.2 GASTROINTESTINAL/PANCREATIC NEUROENDOCRINE CANCERS—SUSPECTED/DIAGNOSIS

Indication	Imaging Study
• Systemic symptoms strongly suggestive of functioning neuroendocrine tumor • Suspicious findings on other imaging studies • Unexplained elevation in any of the following: o Chromogranin A o 5HIAA o Insulin o VIP o Glucagon o Gastrin o Substance P o Serotonin o Somatostatin	Any or all of the following: • Octreotide scan (CPT®78800, 78801, 78802, 78803, or 78804) • CT Abdomen/Pelvis with contrast (CPT®74177) or without and with contrast (CPT®74178) o If CT inconclusive, MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast is indicated • CT Chest with contrast (CPT® 71260) or CXR

ONC-15.3 GASTROINTESTINAL/PANCREATIC NEUROENDOCRINE CANCERS—INITIAL WORKUP/STAGING

Indication	Imaging Study
Carcinoid, pancreatic endocrine tumors	If not already done: • Octreotide scan (CPT®78800, 78801, 78802, 78803, or 78804) • CT Abdomen/Pelvis with contrast (CPT®74177) or without and with contrast (CPT®74178) o If CT inconclusive, MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast is indicated • CT Chest with contrast (CPT® 71260) • See: **ONC-7~Small Cell Lung Cancer** for thoracic carcinoid or neuroendocrine tumors
Poorly differentiated, undifferentiated or features of small cell carcinoma (high grade neuroendocrine tumors)	If not already done: • Octreotide scan (CPT®78800, 78801, 78802, 78803, or 78804) • CT Abdomen/Pelvis with contrast (CPT®74177) or without and with contrast (CPT®74178) o If CT inconclusive, MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast is indicated • Brain MRI (CPT®70553); • See **ONC-31.8 Extrathoracic Small Cell Carcinoma**
All, after complete resection fails to resolve secretion of pathologic levels of hormones or neurotransmitter compounds, and nuclear imaging (MIBG, Octreotide, or Somatostatin scintigraphy) is negative	• PET/CT (CPT® 78815)

ONC-15.4 GASTROINTESTINAL/PANCREATIC NEUROENDOCRINE CANCERS—RESTAGING/RECURRENCE

Indication	Imaging Study
All after surgical resection	• See: Surveillance
After chemo for unresectable/inoperable	• Imaging modality positive prior to therapy
Progression of symptoms, elevation of tumor markers	• Octreotide scan (one of CPT® 78075, 78800, 78801, 78802, 78803, or 78804) • CT Chest without (CPT®71250) or with contrast (CPT®71260) One of the following: • CT Abdomen/Pelvis with contrast (CPT®74177) • CT Abdomen/Pelvis without and with contrast (CPT®74178) • MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast

ONC-15.5 GASTROINTESTINAL/PANCREATIC NEUROENDOCRINE CANCERS—SURVEILLANCE

Indication	Imaging Study
Neuroendocrine tumors of the bowel (small/large)	• CT Abdomen/Pelvis (CPT®74177) once at 3-12 months postoperatively • CT Abdomen/Pelvis (CPT®74177) annually for 10 years
Neuroendocrine tumors of the upper abdomen (i.e., pancreas, stomach)	• CT Abdomen (CPT®74160) once at 3-12 months postoperatively • CT abdomen (CPT®74160) annually for 10 years
Extrathoracic large cell neuroendocrine cancer	• CT Chest (CPT®71260) and Abdomen/Pelvis (CPT®74177) with contrast every 3 months for 1 year then every 6 months for 4 additional years

ONC-15.6 ADRENAL TUMORS—SUSPECTED/DIAGNOSIS

✓ See **AB-16~Adrenal Cortical Lesions** for imaging guidelines for evaluation of suspected adrenal malignancies

Practice note:
If concern for genetic predisposition syndrome such as MEN, neurofibromatosis, or von Hippel-Lindau disease, see screening recommendations in **PEDONC-2**.

ONC-15.7 ADRENAL TUMORS—INITIAL WORKUP/STAGING

Indication	Imaging Study
• Pheochromocytoma • Paraganglioma • Paraganglioneuroma • Adrenocortical carcinoma	If not already done: • MIBG or Octreotide scan (one of CPT® 78075, 78800, 78801, 78802, 78803, or 78804) • CT Chest without (CPT®71250) or with contrast (CPT®71260) One of the following (if not already done): • CT Abdomen/Pelvis with contrast (CPT®74177) • CT Abdomen/Pelvis without and with contrast (CPT®74178) • MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast • PET can be approved when all other imaging is inconclusive and PET findings will direct immediate patient care decisions

ONC-15.8 ADRENAL TUMORS—RESTAGING/RECURRENCE

Indication	Imaging Study
If surgery is primary therapy	• CT Abdomen (CPT®74160) one time within first year post resection then go to surveillance recommendations
Restaging	• CT Chest without (CPT®71250) or with contrast (CPT®71260) One of the following: • CT Abdomen with contrast (CPT®74160) or without and with contrast (CPT®74170) • MRI Abdomen without and with contrast (CPT®74183) • Pelvis imaging is indicated if signs and/or symptoms are present or there is history of prior disease
Recurrence, progression of symptoms, or elevation of tumor markers	• MIBG or Octreotide scan (one of CPT® 78075, 78800, 78801, 78802, 78803, or 78804) • CT Chest without (CPT®71250) or with contrast (CPT®71260) One of the following: • CT Abdomen/Pelvis with contrast (CPT®74177) • CT Abdomen/Pelvis without and with contrast (CPT®74178) • MRI Abdomen (CPT®74183) and Pelvis (CPT®72197) without and with contrast

ONC-15.9 ADRENAL TUMORS—SURVEILLANCE

Indication	Imaging Study
All patients	• CT Abdomen (CPT®74160) and other involved body areas with contrast annually for 10 years

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ONC-16~COLORECTAL CANCER

ONC-16~COLORECTAL CANCER

- Duodenal and small bowel adenocarcinoma follows imaging guidelines for colorectal cancer.
- Neuroendocrine tumors of the small bowel are covered in: **ONC-15~Neuroendocrine Cancers and Adrenal Tumors**.

Appendiceal adenocarcinoma **(including pseudomyxoma peritonei)** follows imaging guidelines for colorectal cancer

ONC-16.1 SUSPECTED/DIAGNOSIS

✓ See **AB-22~GI Bleeding** or **AB-25~CT Colonography (CTC)** for imaging guidelines for evaluation of suspected colorectal malignancies

ONC-16.2 INITIAL WORK-UP/STAGING

Indication	Imaging Study
Carcinoma within a polyp that is completely removed	• No advanced imaging needed
Invasive adenocarcinoma	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT®74177) with contrast
Further evaluation of an inconclusive liver lesion seen on CT	• MRI Abdomen without and with contrast (CPT®74183)
Any one of the following: • Isolated metastatic lesion(s) on other imaging and patient is a candidate for aggressive surgical resection or other localized treatment to metastasis for curative intent • Inconclusive conventional imaging	• PET/CT (CPT® 78815)
Rectal adenocarcinoma	In addition to above, for preoperative planning: • Endorectal ultrasound (CPT® 76872) • MRI Pelvis without and with contrast (CPT® 72197)

ONC-16.3 RESTAGING/RECURRENCE

Indication	Imaging Study
Complete resection	• See Surveillance
Recurrence suspected	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT®74177) with contrast
After completion of planned neoadjuvant therapy	Patients without metastatic disease, when requested by operating surgeon for operative planning: • CT with contrast or MRI without and with contrast of all operative sites All other patients: • No advanced imaging since surgery is "planned"
Unresected primary disease or metastatic disease on chemotherapy	Every 2 cycles of chemotherapy treatment and at the completion of chemoradiotherapy: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of other involved or symptomatic areas
Any one of the following: • Further evaluation of an inconclusive liver lesion seen on CT • Postoperative elevated or rising CEA or LFTs with negative recent conventional imaging	• MRI Abdomen without and with contrast (CPT® 74183)
Any one of the following: • Postoperative elevated or rising CEA or LFTs with negative recent conventional imaging • Isolated metastatic lesion(s) on other imaging and patient is a candidate for aggressive surgical resection or other	• PET/CT (CPT® 78815)

localized treatment to metastasis for curative intent • Differentiate local tumor recurrence from postoperative and/or post-radiation scarring	
New or worsening pelvic pain and recent CT imaging negative or inconclusive	• MRI Pelvis without and with contrast (CPT® 72197)

ONC-16.4 SURVEILLANCE/FOLLOW UP

Indication	Imaging/Lab Study
Stage I and standard risk Stage II	• No routine advanced imaging indicated
Any one of the following: • Lymph node positive colon cancer • Perforation or obstruction at diagnosis • Inadequate lymph node evaluation (<12 nodes examined) at diagnosis	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast annually for 5 years
All rectal adenocarcinoma	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast every 6 months for 2 years then annually for 3 additional years
Metastatic disease (post resection of all disease or being observed off therapy)	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) every 3 months for first year, then every 6 months for 4 more years
Pseudomyxoma peritonei	One of each of the following, every 3 months for first year, then every 6 months for 4 more years: • CT Chest with (CPT® 71260) or without contrast(CPT® 71250) • CT Abdomen/Pelvis with contrast (CPT® 74177) or MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast

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ONC-17~RENAL CELL CANCER (RCC)

ONC-17~RENAL CELL CANCER (RCC)

Practice Note:

PET is not routinely indicated for initial diagnosis, staging or restaging of renal cell cancer.

Data is lacking on improvements in outcomes of renal cell cancer survivors based upon imaging schedules.

- ✓ A minority of adult patients with renal cell cancer (RCC) will have translocations in TFE3 or TFEB, which have a different natural history than "adult type" RCC. Patients of any age with TFE3 or TFEB translocated RCC should be imaged according to guidelines in **PEDONC-7.4 Pediatric Renal Cell Carcinoma (RCC)**.

- ✓ Patients of any age with Wilms Tumor should be imaged according to guidelines in section **PEDONC-7.2 Unilateral Wilms Tumor** or **PEDONC-7.3 Bilateral Wilms Tumor**

ONC-17.1 SUSPECTED/DIAGNOSIS

- ✓ See **AB-35 Indeterminate Renal Lesion** for imaging guidelines for evaluation of suspected renal malignancies

ONC-17.2 INITIAL WORKUP/STAGING

Indication	Imaging Study
All patients	If not done previously: • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) • CT Abdomen/Pelvis, contrast as requested
Any of the following: • Extension of tumor into the vena cava by other imaging • Inconclusive findings on CT	• MRI Abdomen without and with contrast (CPT® 74183)
Bone pain	• Bone scan (See **ONC-1.3**)
Any of the following: • Signs/symptoms of brain metastases	• MRI Brain without and with contrast (CPT® 70553)

• IL-2 therapy being considered	

ONC-17.3 RESTAGING/RECURRENCE

Indication	Imaging Study
Unresectable disease or metastatic disease on chemotherapy	Every 2 cycles of treatment (commonly every 6-8 weeks): • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of other involved or symptomatic areas
Recurrence suspected	• CT Chest (CPT® 71260) and CT Abdomen/Pelvis with contrast (CPT® 74177)

ONC-17.4 SURVEILLANCE

Indication	Imaging Study
Stage I Disease, active surveillance	One of the following, once within 6 months of surveillance initiation: • CT Abdomen with (CPT® 74160) or without and with contrast (CPT® 74170) • MRI (CPT® 74183) Abdomen without and with contrast Annually for 5 years: • Chest x-ray • Abdominal ultrasound (CPT® 76770 or 76775) • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) is indicated for any of the following: o New or worsening thoracic symptoms o New or worsening CXR findings o Pulmonary nodule on prior CT Chest, see **CH-16.1 Solitary Pulmonary Nodule** for imaging guidelines • CT (CPT® 74170) or MRI (CPT® 74183) Abdomen without and with contrast is indicated for any of the following: o New or worsening abdominal symptoms o New or worsening US findings o Suspicious abnormality on post-operative CT
Stage I or II Disease, post-ablation therapy	One of each of the following, 3-6 months post-ablation: • CT Chest with (CPT® 71260) or without contrast (CPT® 71250)

	• CT (CPT® 74170) or MRI (CPT® 74183) Abdomen without and with contrast <u>Annually for 5 years:</u> • Chest x-ray o CT Chest with contrast (CPT® 71260) or without contrast (CPT® 71250) is indicated for new or worsening thoracic symptoms or CXR findings • CT (CPT® 74170) or MRI (CPT® 74183) Abdomen without and with contrast
Stage I Disease, after partial or complete nephrectomy	<u>One of each of the following, 3-12 months post-resection:</u> • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) • CT Abdomen contrast as requested. <u>Annually for 3 years:</u> • Chest x-ray • Abdominal ultrasound (CPT® 76770 or 76775) • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) is indicated for any of the following: o New or worsening thoracic symptoms o New or worsening CXR findings o Pulmonary nodule on prior CT Chest, **<u>see CH-16.1 Solitary Pulmonary Nodule</u>** for imaging guidelines • CT (CPT® 74170) or MRI (CPT® 74183) Abdomen without and with contrast is indicated for any of the following: o New or worsening abdominal symptoms o New or worsening US findings o Suspicious abnormality on post-operative CT
Stage II Disease, post-nephrectomy	<u>One of each of the following, 3-6 months post-resection:</u> • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) • CT Abdomen with (CPT® 74160) or without contrast (CPT® 74150) <u>One of each of the following, every 6 months for 3 years, then annually to year 5:</u> • Chest x-ray • Abdominal ultrasound (CPT® 76770 or 76775) • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) is indicated for any of the following:

	○ New or worsening thoracic symptoms ○ New or worsening CXR findings ○ Pulmonary nodule on prior CT Chest, see **CH-16.1 Solitary Pulmonary Nodule** for imaging guidelines • CT (CPT® 74170) or MRI (CPT® 74183) Abdomen without and with contrast is indicated for any of the following: ○ New or worsening abdominal symptoms ○ New or worsening US findings ○ Suspicious abnormality on post-operative CT
Any of the following: • Stage III Disease, post-nephrectomy • Stage IV Disease, not receiving therapy, no measurable disease	One of each of the following, 3-6 months post-resection: • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) • CT Abdomen with (CPT® 74160) or without contrast (CPT® 74150) One of each of the following, every 3 months for 3 years, then annually to year 5: • CT Chest with (CPT® 71260) or without contrast (CPT® 71250) • CT Abdomen with (CPT® 74160) or without contrast (CPT® 74150)
Metastatic disease on a break from therapy with persistent measurable disease	Any or all of the following, every 3 months: • CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast • CT with contrast of other involved or symptomatic areas

Practice Note:

Surveillance imaging for renal cell cancer is controversial and data is lacking on the magnitude of clinical benefit. Given results of the currently available peer-reviewed literature, the above surveillance imaging recommendations are clinically appropriate.

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ONC-18~TRANSITIONAL CELL CANCER

ONC-18~TRANSITIONAL CELL CANCER

Transitional cell cancers can include: tumors of the bladder, ureters, prostate, urethra, or renal pelvis. For primary cancer of the kidney see **ONC-17~RENAL CELL CANCER (RCC)**.

PET not routinely indicated in transitional cell cancer with exception noted below in: **ONC-18.2 INITIAL WORKUP/STAGING**

ONC-18.1 SUSPECTED/DIAGNOSIS

✓ See **AB-39~Hematuria** for imaging guidelines for evaluation of suspected transitional cell malignancies

ONC-18.2 INITIAL WORKUP/STAGING

Indication	Imaging Study
All patients	One of the following: • CT Abdomen/Pelvis without and with contrast (CPT® 74178) o MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast if contraindication to CT contrast • CT Abdomen/Pelvis without contrast (CPT® 74176) with retrograde pyelogram or renal ultrasound (CPT® 76770 or 76775) in patients who cannot receive either CT or MRI contrast
Any of the following: • Muscle invasive bladder carcinoma • Urethral carcinoma • Urothelial carcinoma of the prostate	• CT Chest without (CPT® 71250) or with contrast (CPT® 71260)
Patients without metastatic disease, when requested by operating surgeon for operative planning:	• CT with contrast or MRI without and with contrast of all operative sites
To determine neoadjuvant therapy versus surgery as initial treatment (if	• PET/CT (CPT® 78815)

conventional imaging negative or inconclusive)	

ONC-18.3 RESTAGING/RECURRENCE

Indication	Imaging Study
Any stage > T1 or treated with definitive surgery	• "Baseline" CT Abdomen/Pelvis with contrast (CPT® 74177) after surgery if requested
Recurrence suspicion	• CT Abdomen/Pelvis with contrast (CPT® 74177) or with and without contrast (CPT® 74178) • CT Chest with contrast (CPT® 71260) if abnormal chest X-ray or lung nodules seen on other imaging
After neoadjuvant therapy and before resection	• CT Chest with contrast (CPT® 71260) and CT urogram (CPT® 74178)
Monitoring therapy for metastatic disease	Every 2 cycles of therapy: • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT Chest with contrast (CPT® 71260) if prior involvement or abnormal chest X-ray

ONC-18.4 SURVEILLANCE

Indication	Imaging Study
Superficial and minimally invasive (Tis and T1) transitional cell carcinoma of the bladder or upper tracts	• CT urogram (CPT® 74178) every 2 years for high grade lesions
Any other muscle invasive lower and upper genitourinary tumors	• CT Abdomen/Pelvis with contrast (CPT® 74177) or without and with contrast (CPT® 74178) every 3 months for 2 years
Urethral cancers (all types) T1 or greater	• CT Abdomen/Pelvis with contrast (CPT® 74177) or MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast every 3 months for 2 years and then annually

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ONC-19~PROSTATE CANCER

ONC-19~PROSTATE CANCER

General Considerations:

The natural history of prostate cancer is highly variable. Therapeutic options may include surgery and radiation therapy along with Active Surveillance (also called observation, watchful waiting, expectant management, or deferred treatment).

Active surveillance describes the monitoring of disease progression in an individual with known diagnosis of prostate cancer. Current guidelines suggest the following protocol:

- PSA every 6 months;
- Digital Rectal Exam every 12 months and;
- Repeat prostate biopsy every 12 months.

PET imaging (including ^{18}F-FDG, ^{18}F-NaF, and ^{11}C-Choline) is considered investigational and experimental for all indications for prostate cancer at this time.

Laser prostate ablation is considered investigational and experimental at this time, and advanced imaging for treatment planning and/or surveillance of laser prostate is not indicated.

High intensity focused ultrasound prostate ablation is considered investigational and experimental at this time, and advanced imaging for treatment planning and/or surveillance of high intensity focused ultrasound prostate ablation is not indicated.

MR Spectroscopy (CPT® 76390) is considered investigational and experimental in the evaluation of prostate cancer at this time.

Use of Imaging for Radiation Therapy Planning:

- The correct procedure codes for radiation therapy planning are CPT® 76497 for CT, CPT® 76498 for MRI, and CPT® 76873 for transrectal ultrasound.
- Post-implantation imaging following permanent transperineal brachytherapy implantation (also called "seed" therapy) should also be ordered with treatment planning codes rather than diagnostic CPT® codes.

ONC-19.1 SUSPECTED/DIAGNOSIS

Indication	Imaging Study
Elevated PSA, abnormal exam, or other clinical suspicion and no previous biopsy	• Transrectal ultrasound (TRUS, CPT® 76872) • TRUS-guided biopsy (CPT® 76942)
At least one negative/non-diagnostic TRUS biopsy with documented plans for MRI guided biopsy or MRI/TRUS fusion biopsy and one of the following: • Continued increase in PSA • Abnormal DRE	One of the following may be approved: • MRI Pelvis without contrast (CPT® 72195) • MRI Pelvis without and with contrast (CPT® 72197) • MRI/US fusion biopsy (CPT® 77021 and 76942) • MRI guided biopsy (CPT® 77021) MRI should not be used to make a decision not to biopsy[1]
PIRADS 4 or 5 lesion identified on recent diagnostic MRI Pelvis (CPT® 72195 or 72197) and planning for biopsy to be done by MRI/TRUS fusion technique	• 3D Rendering (CPT® 76377) CPT® 76376 should not be separately reimbursed (See **Preface-4.1 3D Rendering** for additional details)
Any of the following: • Multifocal (3 or more lesions) high-grade prostatic intraepithelial neoplasia (PIN) Atypia on biopsy	• Extended pattern rebiopsy within 6 months by TRUS-guided biopsy (CPT® 76942)
Focal PIN (1-2 lesions)	One of the following may be approved: • MRI Pelvis without contrast (CPT® 72195) • MRI Pelvis without and with contrast (CPT® 72197) • MRI/US fusion biopsy (CPT® 77021 and 76942) • MRI guided biopsy (CPT® 77021)

Practice Note on 3D Rendering of MRI for MRI / Ultrasound Fusion Biopsy:

- When specific target lesion(s) is(are) detected on mpMRI prostate and classified as PIRADS 4 or 5, then 3D Rendering at independent workstation (CPT® 76377, 3D rendering requiring image post-processing on an independent workstation) for the radiologist to generate prostate segmentation data image set for target identification on MRI/TRUS fusion biopsy is approvable either as

subsequent separate standalone request or as Retro request for medical necessity.

- If there is no target lesion identified on MRI then 3D rendering and MRI/TRUS fusion biopsy is not generally indicated. The Urologist may request MRI/TRUS fusion biopsy of a PIRADS 1-3 lesion. Then approval of 3D rendering at independent workstation (CPT® 76377) can be considered on a case-by-case basis. These cases should be referred for Medical Director Review.
- The 3D rendering for the TRUS component of the fusion is a part of the UroNav Fusion Equipment Software and an additional 3D CPT® code 76376 or 76377 should not be approved.
- eviCore maintains that CPT® 76376 (3D rendering not requiring image post-processing on an independent workstation) should not be separately reimbursed, since this function is built into the imaging software

ONC-19.2 INITIAL WORKUP/STAGING

Indication	Imaging Study
Pelvic imaging for patients with one or more of the following high risk criteria: • Any Gleason score with palpable disease outside of the prostate capsule (T3 or T4 disease) • PSA > 20 • Gleason score ≥ 7 • Gleason score of 6 with one of the following features: o Tumor involving >50% of one lobe (T2b) o Tumor involving both lobes (T2c) o PSA >10	All of the following can be approved: • CT Pelvis with contrast (CPT® 72193) • MRI Pelvis without and with contrast (CPT® 72197)
Abdominal imaging for patients with one or more of the following high risk criteria: • Lymphadenopathy or extraprostatic disease on pelvic imaging • Elevated creatinine for age • Hematuria not related to prostate biopsy	One of the following can be approved: • CT Abdomen with contrast (CPT® 74160) • CT Abdomen without contrast (CPT® 74150)

• Heme-occult positive stools • PSA>20	
All patients not listed above	• Advanced imaging is not indicated • The use of endorectal MRI and/or multi-parametric MRI to define low risk disease for active surveillance is considered experimental and investigational.
Bone pain and/or high risk patients	• Bone scan (See **ONC-1.3**) • If neurological compromise, see: **ONC-31.5 Bone (including Vertebral) Metastases**

ONC-19.3 RESTAGING/RECURRENCE

Indication	Imaging Study
All patients with one or more of the following: • New finding on most recent CT or MRI that was inconclusive • PSA rising on 2 consecutive measurements while on endocrine/hormonal therapy • Clinical suspicion of recurrence or progression	• CT Abdomen/Pelvis with contrast (CPT® 74177)
Patients with prior radical prostatectomy and any of the following: • Palpable anastomotic recurrence • PSA remains > 0.2 after at least 2 PSAs • Initial undetectable PSA increasing on 2 consecutive PSAs	Any of the following can be approved: • CT Abdomen/Pelvis with contrast (CPT® 74177) • May add pelvis MRI pelvis without contrast (CPT® 72195) or without and with contrast (CPT® 72197)
Patients with prior Radiation Therapy and any of the following: • Clinical suspicion of relapsed disease • PSA increasing on at least 2 consecutive values above post-XRT baseline	Any of the following can be approved: • CT Abdomen/Pelvis with contrast (CPT® 74177) o MRI Pelvis without contrast (CPT® 72195) or without and with contrast (CPT® 72197) if CT findings are inconclusive
Hormone Refractory Prostate Cancer (HRPC):	• See **Treatment Response, Interim Restaging** in: **ONC-1.2 Phases of Oncology Imaging and General Phase-Related Considerations**
Prior to start of Xofigo (Radium-223) therapy	• One time CT Chest/Abdomen/Pelvis with contrast (CPT® 71260 and CPT® 74177). • Additional imaging based on standard restaging guidelines in this section.
All patients with one or more of the following: • Obvious progression by DRE with plans for prostatectomy or radiation therapy • Repeat TRUS biopsy for rising PSA shows progression to a higher Gleason's score with plans for	• MRI Pelvis without contrast (CPT® 72195) or without and with contrast (CPT® 72197)

prostatectomy or radiation therapy	

ONC-19.4 SURVEILLANCE/FOLLOW UP

Indication	Imaging/Lab Study
All patients	• PSA and DRE every 6 months, even in patients with metastatic disease. • Advanced imaging not needed, including individuals on active surveillance or low grade/low risk tumors treated with observation
Patients on active surveillance	• Routine MR/US fusion biopsy for annual surveillance is considered investigational at this time • MRI pelvis without (CPT® 72195) or without and with contrast (CPT® 72197) can be approved if one of the following apply: o Progression is suspected based on DRE changes or rising PSA and a recent TRUS biopsy was negative o Routine TRUS biopsy reveals progression of Gleason score • MRI should not be used to make a decision not to biopsy[1]

References

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ONC-20~Testicular and Non-epithelial Ovarian (Germ Cell) Cancer

ONC-20~Testicular and Non-epithelial Ovarian (Germ Cell) Cancer

This section applies to primary germ cell tumors occurring outside the central nervous system in patients age >15 years at the time of initial diagnosis. Patients age ≤15 years at diagnosis should be imaged according to pediatric guidelines in: **PEDONC-10~Pediatric Germ Cell Tumors**

These guidelines are for germ cell tumors of the testicle, ovary, and any extragonadal site.

Requests for imaging must state the histologic type of the cancer being evaluated.

Classified as pure seminomas (dysgerminomas, 40%) or Non-seminomatous germ cell tumors (NSGCT, 60%):

- Pure seminomas are defined as pure seminoma histology with a normal serum concentration of alpha fetoprotein (AFP). Seminomas with elevated AFP are by definition Mixed.
- Required for TNM staging are the tumor marker levels indicated by "S" (TNMS)
- Mixed tumors are treated as NSGCTs, as they tend to be more aggressive.
- The NSGCT histologies include:
  - Yolk-Sac tumors
  - Immature (malignant) teratomas
  - Choriocarcinomas (<1%)
  - Embryonal cell carcinomas (15%-20%)
  - Endodermal Sinus Tumors (ovarian)
  - Combinations of all of the above (Mixed)

ONC-20.1 INITIAL WORKUP/STAGING

Indication	Imaging Study
Orchiectomy/oophorectomy is both diagnostic and therapeutic	Following orchiectomy or oophorectomy: • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT Chest with contrast (CPT® 71260) for positive abdominal disease by CT scan, abnormal CXR, or signs/symptoms

ONC-20.2 RESTAGING/RECURRENCE

Indication	Imaging Study
Treatment response for stage II-IV patients with measurable disease on CT	• CT with contrast of previously involved body areas every 2 cycles
Seminoma with residual mass >3 cm	• PET/CT (CPT® 78815) o PET imaging can be done as early as 6 weeks after completion of XRT if recent CT findings are inconclusive and PET findings will alter immediate care decision making
End of therapy evaluation for NSGCT post chemotherapy or post retroperitoneal lymph node dissection (RPLND)	• CT Abdomen/Pelvis with contrast (CPT ®74177)
Recurrence suspected, including increased tumor markers	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast Ultrasound (CPT® 76856 or CPT® 76857) of the remaining gonad if applicable
Unexplained pulmonary symptoms despite a negative CXR, or new findings on CXR	• CT Chest with contrast (CPT® 71260)
All others	See Surveillance

ONC-20.3 SURVEILLANCE**

Indication	Imaging Study
Stage I Ovarian Dysgerminomas or low grade immature Teratomas	• No routine advanced imaging needed
Stage I Seminoma treated with orchiectomy alone (no radiotherapy or chemotherapy, also called active surveillance)	• CT Abdomen/Pelvis with contrast (CPT® 74177) at 3, 6 and 12 months post-orchiectomy, then annually until year 5
Stage I Seminoma treated with radiotherapy and/or chemotherapy	• CT Abdomen/Pelvis with contrast (CPT® 74177) annually for 3 years
Stage IIA Seminomas treated with radiotherapy or chemotherapy	• CT Abdomen/Pelvis with contrast (CPT® 74177) once at 3 months then once at 6-12 months after completion of therapy, then annually until year 3
Stage IIB, IIC, III, and IV Seminomas treated with chemotherapy	<u>For patients with ≤3 cm residual mass:</u> • CT Abdomen/Pelvis with contrast (CPT® 74177) once at 3-6 months after completion of therapy, then no further routine advanced imaging <u>For patients with >3 cm residual mass and negative PET scan:</u> • CT Abdomen/Pelvis with contrast (CPT® 74177) at 6 and 12 months after completion of therapy, then annually until year 5 <u>For patients with thoracic disease at diagnosis:</u> • CT Chest with contrast (CPT® 71260) every 2 months for 1 year, then every 3 months for 1 year, then annually until year 5
Stage IA Non-Seminomatous germ cell tumors treated with orchiectomy alone (no radiotherapy or chemotherapy, also called active surveillance)	• CT Abdomen/Pelvis with contrast (CPT® 74177) at 6 and 12 months after orchiectomy, then annually until year 3
Stage IB Non-Seminomatous germ cell tumors treated with orchiectomy alone (no radiotherapy or chemotherapy,	• CT Abdomen/Pelvis with contrast (CPT® 74177) every 4 months for 1 year, then every 6 months for 2 years, then annually until year 4

also called active surveillance)	
Stage IB Non-Seminomatous germ cell tumors treated with chemotherapy	• CT Abdomen/Pelvis with contrast (CPT® 74177) annually for 2 years
Stage II-III Non-Seminomatous germ cell tumors with complete response to chemotherapy +/- post-chemotherapy RPLND	• CT Abdomen/Pelvis with contrast (CPT® 74177) once at 6, 12, and 24 months after completion of therapy For patients with thoracic disease at diagnosis: • CT Chest with contrast (CPT® 71260) every 6 months for 2 years, then annually until year 4
Stage IIA or IIB Non-Seminomatous germ cell tumors with post-primary RPLND complete resection +/- adjuvant chemotherapy	• CT Abdomen/Pelvis with contrast (CPT® 74177) once at 3-4 months after completion of therapy
All female germ cell tumors	• No routine imaging unless elevated tumor markers or clinical signs/symptoms of recurrence
Sex cord stromal tumors (male and female)	• No routine advanced imaging indicated unless elevated tumor markers or clinical signs/symptoms of recurrence

****Practice Note:**

MRI in place of CT scans to reduce risk of secondary malignancy is not supported by the peer-reviewed literature. CT scans are indicated for surveillance and is the preferred modality of imaging to assess for recurrence.

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multicenter positron emission tomography study group. *J Clin Oncol*. 2008; 26(36):5930-5935.

ONC-21~OVARIAN CANCER

ONC-21~OVARIAN CANCER

Practice Note:

Ovarian cancers include: epithelial ovarian cancers, granulosa cell tumors, ovarian cancers of low malignant potential and mixed Müllerian tumors, primary peritoneal and fallopian tube cancers.

Germ cell tumors, including stromal tumors, are imaged according to **ONC-20~Testicular and Non-epithelial Ovarian (Germ Cell) Cancer**.

ONC-21.1 Screening for Ovarian Cancer

Indication	Imaging/Lab Study
• BRCA 1 or BRCA 2 mutations (or family history of these mutations) at age 30 or 10 years earlier than the earliest age of the first diagnosis of ovarian cancer in the family; ***or*** • Other High Risk: o low parity o decreased fertility o delayed childbearing o family history of ovarian cancer o hereditary ovarian cancer syndrome that includes ovarian, breast, and/or endometrial and gastrointestinal cancers [Lynch II syndrome] in multiple members of two to four generations)	• Ovarian cancer screening is considered experimental & investigational and is not recommended. • Genetic counseling is recommended for women with an increased-risk family history (USPSTF, 2015)

ONC-21.2 SUSPECTED/DIAGNOSIS

✓ See **PV-5.1 Suspected Adnexal Mass – Initial Evaluation in All Women** for imaging guidelines for evaluation of suspected ovarian malignancies

ONC-21.3 INITIAL WORKUP/STAGING

Indication	Imaging Study
Clinical stage II disease or higher	• CT Abdomen/Pelvis with contrast (CPT® 74177) • CT Chest with contrast (CPT® 71260) if abnormal signs/symptoms of pulmonary disease or abnormal chest X-ray
Any of the following: • Primary peritoneal disease with biopsy-proven malignancy consistent with ovarian carcinoma • Elevated tumor markers with negative or inconclusive CT imaging	• PET/CT (CPT® 78815)

ONC-21.4 RESTAGING/RECURRENCE

Indication	Imaging Study
Completely resected or definitively treated with chemotherapy and normal(ized) tumor markers	• No advanced imaging needed
Any of the following: • Unresected disease • Unknown preoperative markers • Difficult or abnormal examination • Elevated LFTs • Rising tumor markers (CA-125, inhibin) • Signs or symptoms of recurrence	• CT Abdomen/Pelvis with contrast (CPT® 74177) • CT Chest (CPT® 71260) for any of the following: o Prior known thoracic disease o New or worsening thoracic signs/symptoms or CXR findings o Rising CA-125
• CT negative or inconclusive ***and*** CA-125 continues to rise or elevated LFTs • Conventional imaging failed to demonstrate tumor or if persistent radiographic mass with rising tumor markers	• PET/CT (CPT® 78815)

ONC-21.5 SURVEILLANCE

Indication	Imaging Study
All	• No advanced imaging needed

References

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ONC-22~UTERINE CANCER

ONC-22~UTERINE CANCER

- Gestational trophoblastic neoplasia (GTN) – see **PV-16~Molar Pregnancy**
- PET is not routinely indicated for initial diagnosis; staging or restaging of uterine cancer.
- Most common cell type is adenocarcinoma

ONC-22.1 SUSPECTED/DIAGNOSIS

✓ See **PV-14 Uterine Anomalies** for imaging guidelines for evaluation of suspected uterine malignancies

ONC-22.2 INITIAL WORKUP/WORK-UP

Indication	Imaging Study
Extra-uterine disease suspected and/or Grade 3 tumor.	• MRI Pelvis without and with contrast (CPT® 72197) or CT Pelvis with contrast (CPT® 72193)
LFT's elevated or other imaging studies suggesting liver involvement	• CT Abdomen with contrast (CPT® 74160)
Any of the following histologies: • Papillary serous • Clear cell • Carcinosarcoma • Soft tissue sarcoma of the uterus • Leiomyosarcoma • Undifferentiated sarcoma • Endometrial stromal sarcoma	• CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177)
All other patients	• Routine advanced imaging not needed
Considering fertility sparing surgery for well-differentiated Stage IA (grade 1) uterine cancer	• Transvaginal ultrasound (CPT® 76830)and MRI pelvis without and with contrast (CPT® 72197)

Practice Note

Imaging not routinely indicated for laparoscopic/minimally invasive surgery unless initial staging criteria are met. Pelvic and para-aortic lymphadenectomy can still be performed.

ONC-22.3 RESTAGING/RECURRENCE

Indication	Imaging Study
Unresectable, medically inoperable, or incompletely surgically staged patients	One of the following: • CT Abdomen/Pelvis with contrast (CPT® 74177) or • MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast
• Unresected disease • Difficult or abnormal examination • Elevated LFTs or rising tumor markers • Signs or symptoms of recurrence	• CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177)
Papillary serous, clear cell and carcinosarcoma of the uterus	See: **RESTAGING/RECURRENCE** section in: **ONC-21~OVARIAN CANCER**
Soft tissue sarcoma of the uterus, leiomyosarcoma, undifferentiated sarcoma, and endometrial stromal sarcoma	See: **RESTAGING/RECURRENCE** section in **ONC-12.3 SOFT TISSUE SARCOMAS—RESTAGING/RECURRENCE**

ONC-22.4 SURVEILLANCE

Indication	Imaging Study
Papillary serous, clear cell and carcinosarcoma of the uterus	See: **SURVEILLANCE** section in: **ONC-21.5 SURVEILLANCE**
Soft tissue sarcoma of the uterus, leiomyosarcoma, undifferentiated sarcoma, and endometrial stromal sarcoma	See: **ONC-12.4 SOFT TISSUE SARCOMAS—SURVEILLANCE/FOLLOW UP**
All others	• No advanced imaging needed

References

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ONC-23~CERVICAL CANCER

ONC-23~CERVICAL CANCER

Primary histology for cervical cancer is squamous cell. Other, less common histologies are adenosquamous and adenocarcinoma. If biopsy is consistent with one of these less common histologies, it is necessary to clarify that tumor is not of primary uterine origin. If primary uterine in origin, follow imaging recommendations for uterine cancer.
(See: **ONC-22~UTERINE CANCER**)

ONC-23.1 SUSPECTED/DIAGNOSIS

Indication	Imaging Study
All	Biopsy should be performed prior to imaging

ONC-23.2 INITIAL WORKUP/STAGING

Indication	Imaging Study

Stage IB1 or less: <4 cm confined to the cervix	• Chest X-ray
	  o CT Chest (CPT® 71260) is indicated if abnormal CXR or new/worsening thoracic signs/symptoms
	• CT Abdomen/Pelvis with contrast (CPT® 74177)
	  o PET/CT (CPT® 78815) should be approved only to explain inconclusive on other imaging studies. Requests will be forwarded to Medical Director.

Stage IB2 or higher stages	• CT Abdomen/Pelvis with contrast (CPT® 74177) or PET/CT (CPT® 78815)
	• CT Chest with contrast (CPT® 71260) if enlarged para-aortic nodes on CT Abdomen/Pelvis or positive paraaortic nodes found at surgery
	  o MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast if CT contrast allergy or inconclusive CT findings
	• If radiation therapy is to be primary treatment modality, PET/CT (CPT® 78815) can be approved prior to start of XRT even if initial staging is done with CT scans
	  o If PET is done as initial staging CT scans not indicated prior to start of therapy

Any size cervical cancer incidentally found in a hysterectomy specimen	• Chest X-ray • CT Abdomen/Pelvis with contrast (CPT® 74177) o MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast if CT contrast allergy or inconclusive CT findings

	• PET/CT (CPT® 78815) if inconclusive conventional imaging

ONC-23.3 RESTAGING/RECURRENCE

Indication	Imaging Study
• Difficult or abnormal examination • Elevated LFTs • Signs or symptoms of recurrence	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast o MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast if CT contrast allergy or inconclusive CT findings • PET/CT (CPT® 78815) for inconclusive conventional imaging
If primary therapy was surgery	• See Surveillance guidelines **ONC-23.4 SURVEILLANCE**
If primary therapy radiation therapy ± chemotherapy (not adjuvant therapy)	• Chest X-ray o CT Chest (CPT® 71260) is indicated if abnormal CXR or new/worsening thoracic signs/symptoms • CT Abdomen/Pelvis with contrast (CPT® 74177) o MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast if CT contrast allergy or inconclusive CT findings • PET/CT (CPT® 78815) o If ordered for this restaging indication, only one PET/CT should be approved and only if surgical salvage is an option o After the one PET/CT, further follow-up imaging should be with CT or MRI

ONC-23.4 SURVEILLANCE

Indication	Imaging Study
All patients	• No routine advanced imaging needed.

References

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ONC-24~Anal & Vaginal Cancer, Cancers of the External Genitalia

ONC-24~Anal & Vaginal Cancer, Cancers of the External Genitalia

Practice Note:

- Most are squamous cell carcinomas, although some transitional and cloacogenic carcinomas are seen.
- Tumors reported as adenocarcinomas of the anal canal are treated as rectal cancers
- Squamous cell carcinomas of the perianal and perigenital areas are skin cancers. See **ONC-5~Melanomas and Other Skin Cancers**.

ONC-24.1 SUSPECTED/DIAGNOSIS

Indication	Imaging Study
All	• Advanced imaging prior to biopsy is not needed

ONC-24.2 INITIAL WORKUP/STAGING

Indication	Imaging Study
All patients	• CT Chest with contrast (CPT® 71260) One of the following: • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT Abdomen with contrast (CPT® 74160) and MRI Pelvis without and with contrast (CPT® 72197)
Stage II-IV Squamous Cell Carcinoma of the Anal Canal (not Anal Margin such as Bowen's disease or Paget's disease)	• PET/CT (CPT® 78815)

ONC-24.3 RESTAGING/RECURRENCE

Indication	Study
Stage I and II patients	• Routine advanced imaging not needed
Stage III and IV patients	• CT Abdomen/Pelvis with contrast (CPT 74177) • CT Chest (CPT® 71260) if chest x-ray is abnormal or if symptoms of chest involvement
• Difficult or abnormal examination • Elevated LFTs • Signs or symptoms of recurrence • Biopsy proven recurrence	• CT Chest (CPT® 71260) with contrast One of the following: • CT Abdomen/Pelvis with contrast (CPT® 74177) • MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast
Inconclusive findings on conventional imaging	• PET/CT (CPT® 78815)

ONC-24.4 SURVEILLANCE

Indication	Study
Anal canal cancer: Stage 3 or greater	• CT Chest (CPT® 71260) with contrast annually for 3 years One of the following annually for 3 years: • CT Abdomen/Pelvis with contrast (CPT® 74177) • MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast
Penile cancer: Node positive disease only	• CT Abdomen/Pelvis with contrast (CPT® 74177) every 3 months for year 1, and then every 6 months for year 2, then no further routine advanced imaging indicated
All other patients	• No routine advanced imaging needed

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ONC-25~Multiple Myeloma and Plasmacytomas

ONC-25~Multiple Myeloma and Plasmacytomas

Multiple myeloma is a neoplastic disorder characterized by the proliferation of a single clone of plasma cells derived from B cells which grows in the bone marrow and adjacent bone, producing skeletal destruction. Multiple myeloma diagnosis has (with certain exceptions) all three of the following:

1. The presence of a monoclonal plasma protein (M-protein) in the urine or serum.
2. Monoclonal cells in the bone marrow and/or presence of a biopsy proven plasmacytoma.
3. Myeloma related organ dysfunction, including radiographic abnormalities, as well as hypercalcemia, elevated creatinine, anemia, etc.

Monoclonal Gammopathy of Unknown Significance (MGUS) or for Systemic Light Chain Amyloidosis – no advanced imaging is generally needed (see below for exceptions).

Staging is not by the TNM system; rather, extent of the disease is based on laboratory assessment. There are three stages. Stage 1 disease may be called "Smoldering Myeloma," and can be followed with observation and laboratory assessment.

Rarely, (<5%), an individual may have Nonsecretory Myeloma, which does not produce measurable M-protein. These patients require imaging as primary method to monitor disease.

Plasmacytoma: Malignant tumor cell growth of plasma cells that may be:

- Solitary plasmacytoma of bone
- Extramedullary plasmacytoma
- Multiple plasmacytomas either primary or recurrent

For myeloma like and lymphoma like disease, see **ONC-27~NON-HODGKIN LYMPHOMAS**.

ONC-25.1 SUSPECTED/DIAGNOSIS

Indication	Imaging Study
All	• X-ray skeletal series

ONC-25.2 INITIAL WORKUP/STAGING

Indication	Imaging Study
All patients with symptoms or negative/equivocal X-ray skeletal series	One of the following: • MRI Cervical (CPT® 72141), Thoracic (CPT® 72146), Lumbar spine (CPT® 72148), and Pelvis (CPT®72195) without contrast • MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), Lumbar spine (CPT® 72158), and Pelvis (CPT® 72197) without and with contrast • MRI Bone Marrow Blood Supply (CPT® 77084) • CT contrast as requested of a specific area to determine radiotherapy or surgical candidacy, or for suspected extraosseous plasmacytoma
Any of the following: • Determine if plasmacytoma is truly solitary • Suspected extraosseous plasmacytomas • Ensure patient has Stage I or "smoldering" myeloma and does not have "full-blown" myeloma • Progression of monoclonal gammopathy of unknown significance (MGUS) to a more malignant form • Inconclusive radiographic imaging	One of the following (if not previously done): • PET/CT (CPT® 78815 or 78816) • MRI Cervical (CPT® 72141), Thoracic (CPT® 72146), Lumbar spine (CPT® 72148), and Pelvis (CPT®72195) without contrast • MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), Lumbar spine (CPT® 72158), and Pelvis (CPT® 72197) without and with contrast • MRI Bone Marrow Blood Supply (CPT® 77084)

ONC-25.3 RESTAGING/RECURRENCE

Indication	Imaging Study
Extra-osseous plasmacytoma response to initial therapy	• CT contrast as requested, MRI without contrast, or MRI without and with contrast of any previously involved area
Laboratory tests fail to normalize with treatment	• CT contrast as requested, MRI without contrast, or MRI without and with contrast of symptomatic areas
Known spine involvement with new neurological signs/symptoms, pain escalation, or to determine therapy response with inconclusive labs	• MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), Lumbar spine (CPT® 72158), and Pelvis (CPT® 72197) without and with contrast
Recurrence suspected	• MRI without contrast, or MRI without and with contrast for any previously involved bony area or symptomatic area
Bone marrow transplant consideration	One of the following, before transplant and once after transplant: • MRI Cervical (CPT® 72141), Thoracic (CPT® 72146), Lumbar spine (CPT® 72148), and Pelvis (CPT® 72195) without contrast • MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), Lumbar spine (CPT® 72158), and Pelvis (CPT® 72197) without and with contrast
Any of the following: • MGUS disease with signs/symptoms or lab studies suggesting progression. • Negative PET will allow change in management from active to maintenance treatment or surveillance. • Determine additional therapies in refractory disease or non-secretory disease**. These requests will be forwarded for Medical Director Review.	One of the following: • PET/CT (CPT® 78815 or 78816) • MRI Cervical (CPT® 72141), Thoracic (CPT® 72146), Lumbar spine (CPT® 72148), and Pelvis (CPT® 72195) without contrast • MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), Lumbar spine (CPT® 72158), and Pelvis (CPT® 72197) without and with contrast • MRI Bone Marrow Blood Supply (CPT® 77084)

Practice note:

Routine imaging is not recommended to assess response to therapy for myeloma patients. Response is determined by monitoring urine and serum protein values. PET scans have not been shown significantly alter therapeutic decisions and may only provide prognostic information.

**Non-secretory myeloma patients do not secret any immunoglobulin proteins. This is a rare form of the disease that occurs in less than 5% of myeloma patients. Imaging to monitor may be considered for these specific patients.

ONC-25.4 SURVEILLANCE

Indication	Study
Plasmacytomas	• CT contrast as requested, MRI without contrast, or MRI without and with contrast of area involved, every 6 months for 2 years, then annually
All others, including Bone Marrow Transplant	• No routine advanced imaging needed

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ONC-26~LEUKEMIA

ONC-26~LEUKEMIA

ONC-26.1 General Considerations

- PET imaging is considered investigational and experimental for all indications in acute lymphoblastic leukemia, acute myeloid leukemia, and chronic myeloid leukemia.

ONC-26.2 Acute Leukemias

- Imaging indications for acute lymphoblastic leukemia in adult patients are identical to those for pediatric patients. See **PEDONC-3.2 Acute Lymphoblastic Leukemia (ALL)** for imaging guidelines.
- Imaging indications for acute myeloid leukemia in adult patients are identical to those for pediatric patients. See **PEDONC-3.3 Acute Myeloid Leukemia (AML)** for imaging guidelines.

ONC-26.3 Chronic Myeloid Leukemias, Myelodysplastic Syndrome and Myeloproliferative Disorders

Routine advanced imaging is not indicated in the evaluation and management of chronic myeloid leukemias, myelodysplastic syndromes, or myeloproliferative disorders in the absence of specific localizing clinical symptoms or clearance for hematopoietic stem cell transplantation. See **ONC-29~Hematopoietic Stem Cell Transplantation** for imaging guidelines related to transplant.

ONC-26.4 Chronic Lymphocytic Leukemia (CLL)/Small Lymphocytic Lymphoma (SLL)

✓ PET imaging is not indicated in the evaluation of CLL/SLL with the exception of suspected Richter's transformation (see Suspected transformation, below)

Phase of Therapy	Imaging Studies
Initial Staging/Diagnosis	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177)
Treatment Response	• For patients with bulky nodal disease at diagnosis, CT with contrast of previously involved area(s) every 2 cycles of therapy • Routine imaging is not indicated for patients without bulky nodal disease at

	diagnosis
End of Therapy Evaluation	• For patients with bulky nodal disease at diagnosis, CT with contrast of previously involved area(s)
Suspected Recurrence	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s)
Suspected transformation (Richter's) from a low grade lymphoma to a more aggressive type based on one or more of the following: • New B symptoms • Rapidly growing lymph nodes • Extranodal disease develops • Significant recent rise in LDH above normal range	• PET/CT (CPT® 78815)
Surveillance	• For patients with bulky nodal disease at diagnosis, every 6 months for two years, then annually: o CT Chest with contrast (CPT® 71260) o CT Abdomen/Pelvis with contrast (CPT® 74177) o CT with contrast of previously involved area(s) • Routine imaging is not indicated for patients without bulky nodal disease at diagnosis

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ONC-27~NON-HODGKIN LYMPHOMAS

ONC-27~NON-HODGKIN LYMPHOMAS

See **ONC-31.11 Castleman's disease (unicentric and multicentric)**.

See **ONC-26.4 Chronic Lymphocytic Leukemia (CLL)/Small Lymphocytic Lymphoma (SLL)** for guidelines covering Chronic Lymphocytic Leukemia (CLL)/Small Lymphocytic Lymphoma (SLL).

ONC-27.1 GENERAL CONSIDERATIONS

- ✓ Lymphoma is often suspected when patients have bulky lymphadenopathy, hepatomegaly, splenomegaly, or abnormalities in white blood cell, red blood cell, or platelet counts
  - o In addition to the above, the presence of systemic symptoms (fever, drenching night sweats, and unintended weight loss of >10%, called "B symptoms") further raises suspicion for lymphoma
- ✓ All CT imaging recommended in this section refers to CT with contrast only.
  - o Noncontrast CT imaging has not been shown to be adequate in the management of lymphomas
  - o Given the limited utility of noncontrast CT imaging in lymphomas, MRI without OR without and with contrast is recommended in place of CT for patients who cannot tolerate CT contrast due to allergy or impaired renal function
- ✓ CT Neck with contrast (CPT® 70491) is indicated for patients with signs or symptoms of disease involving the neck
  - o Routine advanced imaging of the neck in patients without clinical signs of neck involvement is not indicated
- ✓ MRI Brain without and with contrast (CPT® 70553) is indicated for patients with signs or symptoms suggesting brain metastases. See **ONC-1.1 Key Principles**.
  - o Routine advanced imaging of the brain in patients without clinical signs of neck involvement is not indicated
- ✓ Patients with AIDS-related lymphoma should be imaging according to the primary lymphoma histology
- ✓ Bone scan is inferior to MRI for evaluation of known or suspected bone metastases in lymphoma. MRI without and with contrast of symptomatic or previously involved bony areas can be approved in known lymphoma patients without prior plain x-ray or bone scan evaluation.

ONC-27.2 DIFFUSE LARGE B CELL LYMPHOMA (DLBCL)

- Grey zone lymphomas, primary mediastinal B cell lymphomas, and Grade 3 (high) follicular lymphoma should also be imaged according to these guidelines
- Post-transplant lymphoproliferative disorder (PTLD) or viral-associated lymphoproliferative disorder can rarely occur following solid organ or hematopoietic stem cell transplantation, or in primary immunodeficiency. These disorders may be treated similarly to high grade NHL when altering immunosuppressive regimens is unsuccessful, are highly FDG-avid, and should be imaged according to this section.

Phase of Therapy	Imaging Studies
Initial Staging/Diagnosis	Any or all of the following may be approved: • PET/CT (CPT® 78815 or 78816) • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177)
Treatment Response	Any or all of the following may be approved every 2 cycles of therapy: • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
End of Chemotherapy and/or Radiation Therapy Evaluation	Any or all of the following may be approved: • PET/CT (CPT® 78815 or 78816) may be approved at the end of chemo and again at the end of radiation • CT with contrast of previously involved area(s)
Suspected or Biopsy-Confirmed Recurrence	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
Surveillance	• Stage I and II: o No routine advanced imaging indicated • Stage III and IV: o CT with contrast of previously involved area(s) every 6 months for two years, then no

	further routine advanced imaging

ONC-27.3 FOLLICULAR LYMPHOMA

✓ This section applies to follicular lymphomas with WHO grade of 1(low) or 2 (intermediate). Grade 3 (high) follicular lymphomas should be imaged according to **ONC-27.2 DIFFUSE LARGE B CELL LYMPHOMA (DLBCL)**

Phase of Therapy	Imaging Studies
Initial Staging/Diagnosis	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • PET/CT (CPT® 78815 or 78816) can be approved if XRT is being considered for stage I or II disease
Treatment Response	• CT with contrast of previously involved area(s) every 2 cycles of therapy
End of Therapy Evaluation	One of the following may be approved: • CT with contrast of previously involved area(s) • PET/CT (CPT® 78815 or 78816)
Suspected Recurrence	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
Suspected transformation (Richter's) from a low grade lymphoma to a more aggressive type based on one or more of the following: • New B symptoms	• PET/CT (CPT® 78815)

• Rapidly growing lymph nodes • Extranodal disease develops • Significant recent rise in LDH above normal range	
Surveillance	<u>For all stages, every 6 months for two years, then annually:</u> • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.

ONC-27.4 Marginal Zone Lymphomas

- MALT lymphomas in any location should also be imaged according to these guidelines

Phase of Therapy	Imaging Studies
Initial Staging/Diagnosis	<u>Any or all of the following may be approved</u>: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • PET/CT (CPT® 78815 or 78816) can be approved if XRT is being considered for stage I or II disease
Treatment Response	• CT with contrast of previously involved area(s) every 2 cycles of therapy
End of Therapy Evaluation	<u>One of the following may be approved:</u> • CT with contrast of previously involved area(s) • PET/CT (CPT® 78815 or 78816)
Suspected Recurrence	<u>Any or all of the following may be approved</u>: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved

	area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
Surveillance	• <u>For any stage nodal marginal zone lymphoma or stage III or IV marginal zone lymphoma, the following is indicated every 6 months for two years, then annually:</u> o CT Chest with contrast (CPT® 71260) o CT Abdomen/Pelvis with contrast (CPT® 74177) o CT with contrast of previously involved area(s) o Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review. • <u>All other patients</u>: o No routine advanced imaging indicated

ONC-27.5 Mantle Cell Lymphoma

Phase of Therapy	Imaging Studies
Initial Staging/Diagnosis	<u>Any or all of the following may be approved</u>: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • PET/CT (CPT® 78815 or 78816) can be approved if XRT is being considered for stage I or II disease
Treatment Response	• CT with contrast of previously involved area(s) every 2 cycles of therapy • Requests for PET/CT can be considered in rare circumstances; these cases should be forwarded for Medical Director review

End of Therapy Evaluation	One of the following may be approved: • CT with contrast of previously involved area(s) • PET/CT (CPT® 78815 or 78816)
Suspected Recurrence	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
Surveillance	All Stages of Disease: • No routine advanced imaging indicated

ONC-27.6 Burkitt's Lymphomas

Phase of Therapy	Imaging Studies
Initial Staging/Diagnosis	Any or all of the following may be approved: • PET/CT (CPT® 78815 or 78816) • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177)
Treatment Response	• CT with contrast of previously involved area(s) every 2 cycles of therapy • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
End of Therapy Evaluation	Any or all of the following may be approved: • PET/CT (CPT® 78815 or 78816) may be approved at the end of chemo and again at the end of radiation • CT with contrast of previously involved area(s)
Suspected Recurrence	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare

	circumstances. These cases should be forwarded for Medical Director Review.
Surveillance	<u>All Stages of Disease:</u> • No routine advanced imaging indicated

ONC-27.7 Lymphoblastic Lymphomas

- Patients with lymphoblastic lymphoma (even those with bulky nodal disease) are treated using the leukemia treatment plan appropriate to the cell type (B or T cell). Imaging indications in adult patients are identical to those for pediatric patients. See **PEDONC-3.2 Acute Lymphoblastic Leukemia (ALL)** for imaging guidelines.

ONC-27.8 Cutaneous Lymphomas

- Includes Primary Cutaneous B Cell Lymphomas, Peripheral T-Cell Lymphomas, Mycosis Fungoides/Sézary Syndrome, Primary Cutaneous CD30+T Cell Lymphoproliferative Disorders

Phase of Therapy	Imaging Studies
Initial Staging/Diagnosis	<u>Any or all of the following may be approved</u>: • PET/CT (CPT® 78815 or 78816) • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177)
Treatment Response	• CT with contrast of previously involved area(s) every 2 cycles of therapy • Requests for PET/CT can be considered in rare circumstances; these cases should be forwarded for Medical Director review
End of Therapy Evaluation	<u>Any or all of the following may be approved</u>: • PET/CT (CPT® 78815 or 78816) may be approved at the end of chemo and again at the end of radiation • CT with contrast of previously involved area(s)
Suspected Recurrence	<u>Any or all of the following may be approved</u>: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
Surveillance	• Stage I and II:

	○ No routine advanced imaging indicated • Stage III and IV: ○ CT with contrast of previously involved area(s) every 6 months for two years, then no further routine advanced imaging

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ONC-28~Hodgkin Lymphomas

ONC-28~Hodgkin Lymphomas

ONC-28.1 General Considerations

- ✓ Lymphoma is often suspected when patients have bulky lymphadenopathy, hepatomegaly, splenomegaly, or abnormalities in white blood cell, red blood cell, or platelet counts
  - o In addition to the above, the presence or absence of systemic symptoms (fever, drenching night sweats, and unintended weight loss of >10%, called "B symptoms") further raises suspicion for lymphoma
- ✓ CT Neck with contrast (CPT® 70491) is indicated for patients with signs or symptoms of disease involving the neck
  - o Routine advanced imaging of the neck in patients without clinical signs of neck involvement is not indicated
- ✓ MRI Brain without and with contrast (CPT® 70553) is indicated for patients with signs or symptoms suggesting brain metastases. See **ONC-1.1 Key Principles**
  - o Routine advanced imaging of the brain in patients without clinical signs of brain involvement is not indicated
- ✓ Patients with AIDS-related lymphoma should be imaging according to the primary lymphoma histology
- ✓ Bone scan is inferior to MRI for evaluation of known or suspected bone metastases in lymphoma. MRI without and with contrast of symptomatic or previously involved bony areas can be approved in known lymphoma patients without prior plain x-ray or bone scan evaluation.

ONC 28.2 Classical Hodgkin Lymphoma

Stage	Imaging Study
Initial Staging/Diagnosis	Any or all of the following may be approved: • PET/CT (CPT® 78815 or 78816) • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177)
Treatment Response	• PET/CT (CPT® 78815 or 78816) as frequently as every 2 cycles o CT with contrast of previously involved areas can be approved as a substitute for PET/CT for Stage IA or IIA
End of Therapy Evaluation	• PET/CT (CPT® 78815 or 78816) >12 weeks after the end of radiation therapy
Suspected Recurrence	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
Surveillance	Any or all of the following may be approved at 6, 12, and 24 months after completion of therapy: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) In addition to the above studies: • A single follow-up PET/CT may be approved >12 weeks after the end of radiation therapy if end of therapy PET/CT report documents Deauville 4 or 5 FDG avidity

ONC 28.3 Nodular Lymphocyte-Predominant Hodgkin Lymphoma

Stage	Imaging Study
Initial Staging/Diagnosis	Any or all of the following may be approved: • PET/CT (CPT® 78815 or 78816) • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177)
Treatment Response	• Patients treated with surgery alone go directly to Surveillance for additional imaging guidelines • Patients treated with radiotherapy alone go directly to End of Therapy Evaluation for additional imaging guidelines • PET/CT (CPT® 78815 or 78816) as frequently as every 2 cycles o CT with contrast of previously involved areas can be approved as a substitute for PET/CT for Stage IA or IIA
End of Therapy Evaluation	• PET/CT (CPT® 78815 or 78816) >12 weeks after the end of radiation therapy
Suspected Recurrence	Any or all of the following may be approved: • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) • Requests for PET/CT can be considered in rare circumstances. These cases should be forwarded for Medical Director Review.
Suspected transformation (Richter's) from a low grade lymphoma to a more aggressive type based on one or more of the following: • New B symptoms • Rapidly growing lymph nodes • Extranodal disease develops Significant recent rise in LDH above normal range	• PET/CT (CPT®78815)

Surveillance	<u>Any or all of the following may be approved at 6, 12, and 24 months after completion of therapy:</u> • CT Chest with contrast (CPT® 71260) • CT Abdomen/Pelvis with contrast (CPT® 74177) • CT with contrast of previously involved area(s) <u>In addition to the above studies:</u> • A single follow-up PET/CT may be approved >12 weeks after the end of radiation therapy if end of therapy PET/CT report documents Deauville 4 or 5 FDG avidity

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ONC-29~Hematopoietic Stem Cell Transplantation

ONC-29.1 General Considerations for Stem Cell Transplant

Terminology:

A number of terms will be used to describe the transplant process of using chemotherapy ± radiation to ablate the recipient's bone marrow stores, depending on the source of the hematopoietic stem cells and the indication, including bone marrow transplant (BMT), stem cell transplant (SCT), and hematopoietic stem cell transplant (HSCT).

Transplant types:

Allogeneic ("allo"): The donor and recipient are different people, and there are multiple types depending on the source of the stem cells and degree of match between donor and recipient. This is most commonly used in diseases originating in the hematopoietic system, such as leukemias and lymphomas, and bone marrow failure syndromes or metabolic disorders. Common types are:

- Matched sibling donor (MSD or MRD): Donor and recipient are full siblings and HLA-matched
- Matched unrelated donor (MUD): Donor and recipient are HLA matched but not related to each other
- Cord blood: Donor stem cells come from frozen umbilical cord blood not related to the recipient, sometimes from multiple different donors at once
- Haploidentical transplant (haplo): Donor is a half-HLA match to the recipient, usually a parent

Autologous ("auto"): The donor and recipient are the same person, as with allogeneic there are multiple types of this transplant. Transplant is really a misnomer since the process involves delivery of high dose chemotherapy that is ablative to the bone marrow, requiring an infusion of stem cells to allow marrow recovery. As such, it is more correctly called a rescue. Rescue is most commonly used for metastatic disease involving the hematopoietic system.

Allo HSCT results in a much greater degree of immunosuppression than auto because of the need to allow the new immune system to chimerize with the recipient's body. Immune reconstitution commonly takes more than a year for patients who receive allo HSCT, and patients remain at high risk for invasive infections until that has occurred.

Pre-Transplant Imaging in HSCT:

This imaging generally takes place within 30 days of transplant, and involves a reassessment of the patient's disease status as well as infectious disease clearance.

- For oncology indications, imaging listed in MSI GL under restaging, end of therapy, or treatment response can be approved as pre-transplant imaging, including PET imaging.
  - PET should not be approved for transplant in diseases in which EviCore Guidelines do not support the use of PET imaging during initial workup and treatment (such as myeloma**).
  - Myeloma PET requests should be forwarded for Medical Director Review.
- CT of the sinuses, neck, chest, and/or abdomen/pelvis (contrast as requested) is commonly requested in the immediate pre-transplant period and should be approved as requested. These studies are necessary within 30 days of transplant, and frequently have to be repeated if the transplant is delayed for any reason.
- Nuclear renal function study (CPT® 78708 or 78709) to ensure adequate renal function.
- Echocardiogram (CPT® 93306) is routinely indicated to ensure adequate cardiac function to proceed with transplant. MUGA scan (CPT® 78472) may be indicated in specific circumstances.
  See: **CD-3.5 MUGA Study – Oncologic Indications** for more detail.

Post-Transplant Imaging in HSCT:
There are many common complications from HSCT, including infection, graft versus host disease, hepatic sinusoidal obstruction syndrome, restrictive lung disease, among others. Site-specific imaging requests to evaluate known or suspected HSCT complications should generally be approved.

Disease response generally takes place at ~Day +30 (autos and some allos) or ~Day +100 (allos) post-transplant.

- For oncology indications, imaging listed in disease-specific guidelines under restaging, end of therapy, or treatment response can be approved as post-transplant imaging, including PET imaging.
  - PET should not be approved in diseases where MSI GL do not support the use of PET imaging during initial workup and treatment (such as myeloma**)
  - If PET is negative at Day +30, repeat PET at Day +100 is not indicated unless conventional imaging is inconclusive.
- Patients receiving tandem auto transplants (2-4 autos back-to-back, spaced 6-8 weeks apart) can have this imaging completed following each separate transplant
- Myeloma PET requests should be forwarded for Medical Director Review

Imaging after disease response has been completed (~Day +100 for allos and ~Day +30 for autos) should follow eviCore surveillance guidelines for the specific disease unless the patient is receiving ongoing anticancer therapy.

**PET can be considered in myeloma patients who are non-secretors of immunoglobulin proteins (non-secretory disease is rare and accounts for less than 5% of myeloma cases)

- ✓ CT Chest without contrast (CPT® 71250) is indicated for patients with bronchiolitis obliterans with organizing pneumonia (BOOP) for surveillance and evaluation of acute changes.

ONC-30~Medical Conditions with Cancer in the Differential Diagnosis

ONC-30~Medical Conditions with Cancer in the Differential Diagnosis

ONC-30.1 Fever of Unknown Origin (FUO)

Indication	Imaging Study
In addition to physical examination, based on suspicion location, one can consider:	• Chest X-ray, Echocardiogram (CPT® 93306), Abdominal ultrasound (CPT® 76700) and /or MRI Brain without and with contrast (CPT® 70553)
Above studies (including PE/ENT exam, pelvic exam, and DRE with laboratory studies) have failed to demonstrate site of infection	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast • Radiopharmaceutical Nuclear Imaging scan (CPT® 78805, 78806, or 78807)
"B" symptoms	• See **ONC-27~NON-HODGKIN LYMPHOMAS**
Any CNS sign/symptom accompanied by fever	• MRI Brain without and with contrast (CPT® 70553)
All patients	• PET is not indicated in the work-up of patients with FUO

NOTE: FUO is defined as a persistent fever ≥101°F and ≥ 3 weeks with unidentified cause.

While fever is a classic "B" symptom of advanced lymphoma, a cancer- related fever presenting in isolation without any other signs or symptoms of neoplastic disease is rare.

Careful head and neck and pelvic examination, to include digital rectal exam, must be performed. These areas can harbor occult sources of fever and are frequently overlooked when multiple specialists become involved in a patient's care.

Chest X-ray and repeated battery of laboratory tests listed in most medical textbooks are the initial diagnostic procedures of choice. Any abnormalities found on these studies may focus appropriate imaging decisions, such as:

- Echocardiogram may reveal cardiac valve vegetations;
- Abdominal ultrasound (CPT® 76700) should be performed to evaluate pancreas, liver, spleen, and gallbladder;
- If all tests listed above remain non-contributory, then CT scans outlined above may be considered.

ONC-30.2 Unexplained Weight Loss

Indeterminate Findings	Imaging Study
Evaluations listed below do not identify cause of weight loss (for smokers, see below)	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast

Potential causes of weight lost to consider
Unexplained weight loss from neoplastic disease is very common in end-stage cancer; however, cancer-related weight loss presenting as the sole symptom without any other signs or symptoms related to the cancer is exceedingly rare.
Careful attention to symptoms related to dysphagia, early satiety, and food intake may indicate a problem with the upper GI system. Endoscopy and/or barium swallow, and a detailed examination of the oral cavity, pharynx, and upper esophagus should be performed.
Panhypopituitarism or hyperthyroidism may give rise to weight loss. A thorough endocrine evaluation, including tests for TSH and ACTH, is indicated.
Any abnormality of pituitary hormones may indicate a need for MRI of the sella turcica without and with contrast (CPT® 70553).
Elevated thyroglobulin level may indicate a need for nuclear thyroid scan or thyroid ultrasound (CPT® 76536).
Renal, hepatic, and cardiac pathologies must be carefully ruled out using lab tests and imaging studies such as echocardiogram (CPT® 93306) and abdominal ultrasound (CPT® 76700).
Weight loss associated with anemia may suggest occult GI bleeding and/or hypogonadism. Serial tests for heme in stools and endocrine evaluations for gonadal function may be helpful.
Depression and early dementia may be causes of weight loss. Detailed neurological examination should be performed. When considering such etiologies, care must be taken to consider that the weight loss may be intentional but not disclosed for reasons of secondary gain.
Unintentional weight loss may be an infrequent side effect of commonly prescribed medications and over-the-counter medications. Careful history taking is recommended.
For non-smokers, chest X-ray should be performed. For smokers, CT chest with contrast (CPT® 71260) can be approved.
PET is not appropriate in the work-up of patients with unexplained weight loss.

ONC-30.3 Paraneoplastic Syndromes

Indication	Imaging Study
Smoker, past or present	• CT Chest with contrast (CPT® 71260) • Abdominal (CPT® 76700) and pelvic (CPT® 76856) ultrasound
Non-smokers	• Abdominal (CPT® 76700) and pelvic (CPT® 76536) ultrasound • Chest X-ray • Mammogram and pelvic exam with transvaginal US (CPT® 76830) in women
If above evaluations are negative	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast o CT may be repeated annually for 2 years post initial imaging for diagnosis of paraneoplastic syndrome
Any of the following: • Abnormality on conventional imaging difficult to biopsy • Inconclusive conventional imaging	• PET/CT (CPT® 78815 or 78816)
For elevated tumor markers noted on laboratory testing in a patient with no history of cancer, follow guidelines for paraneoplastic syndrome. In addition thyroid US is recommended for elevated CEA, and upper/lower endoscopy is recommended for elevated CEA or CA 19-9.	

See also: **PN-6 Muscle Disorders** in the Peripheral Nerve Disorders Guidelines

See also: **ONC-25~Multiple Myeloma and Plasmacytomas** for evaluation of possible multiple myeloma.

Practice Note:

Paraneoplastic syndromes are metabolic and neuromuscular disturbances. These syndromes are not directly related to a tumor or to metastatic disease. Patients with a paraneoplastic syndrome should be evaluated initially with chest X-ray and complete metabolic panel.

There may be a lead time between initial finding of a possible paraneoplastic syndrome and appearance of the cancer with imaging. Limited studies suggest annual imaging for 2 years after diagnosis of possible paraneoplastic syndrome may detect cancer, however benefit after 2 years is not well documented.

Almost any tumor can give rise to these syndromes, but they are most commonly associated with lung cancer (especially small cell lung cancer). The following are

the most common symptoms of paraneoplastic syndromes known to arise from various malignancies, but especially found in patients with lung cancer:

- Hypertrophic Pulmonary Osteoarthropathy: Often presents as a constellation of rheumatoid-like polyarthritis, periostitis of long bones, and clubbing of fingers and toes
- Amyloidosis
- Hypercalcemia
- Hypophosphatemia
- Cushing's Syndrome
- Somatostatinoma syndrome (vomiting, abdominal pain, diarrhea, cholelithiasis)
- Syndrome of inappropriate antidiuretic hormone secretion (SIADH)
- Polymyositis/dermatomyositis
- Opsoclonus
- Paraneoplastic sensory neuropathy
- Subacute cerebellar degeneration
- Eaton-Lambert syndrome (a myasthenia-like syndrome)
- Second event of unprovoked thrombosis
- Disseminated Intravascular Coagulation
- Migratory thrombophlebitis
- Polycythemia
- Chronic leukocytosis and/or thrombocytosis

Practice note:

Imaging for malignancy is not indicated for first episode of unprovoked DVT/VTE but may be considered after a second unprovoked DVT/PE in the setting of a negative workup for inherited thrombophilia and antiphospholipid syndrome.

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ONC-31~Metastatic Cancer, Carcinoma of Unknown Primary Site, and Other Types of Cancer

ONC-31~Metastatic Cancer, Carcinoma of Unknown Primary Site, & Other Types of Cancer

- Guideline sections **ONC-31.1-ONC-31.5** should only be used for patients with metastatic cancer in the following circumstances:
  - The primary diagnosis section does not address a particular metastatic site that is addressed in these sections
  - The cancer type is rare and does not have its own diagnosis-specific imaging guidelines

ONC-31.1 Lung Metastases

Site of Metastases	Imaging Study(ies)
New or worsening signs or symptoms suggestive of metastatic lung involvement or new or worsening chest X-ray abnormality	• CT Chest with contrast (CPT® 71260) o CT Chest without contrast (CPT® 71250) can be approved if there is a contraindication to CT contrast or only parenchymal lesions are being evaluated
Chest wall or brachial plexus involvement	• MRI Chest without and with contrast (CPT® 71552)
One of the following and **no diagnosis-specific guideline regarding PET imaging**: • Lung nodule(s) ≥8 mm • Confirm solitary metastasis amenable to resection on conventional imaging	• PET/CT (CPT® 78815) o When primary cancer known, PET request should be reviewed by primary cancer GL

ONC-31.2 Liver Metastases

Site of Metastases	Imaging Study(ies)
New or worsening signs or symptoms suggestive of metastatic liver involvement or new elevation in LFTs.	• CT Abdomen with (CPT® 74160) or without and with contrast (CPT® 74170)
Any of the following: • Considering limited resection • Confirm first site of metastatic failure • Inconclusive CT findings	• MRI Abdomen without and with contrast (CPT® 74183)
One of the following and **no diagnosis-specific guideline regarding PET imaging**: • Confirm solitary metastasis amenable to resection on conventional imaging • LFT's and/or tumor markers continue to rise and CT and MRI are negative	• PET/CT (CPT® 78815) o When primary cancer known, PET request should be reviewed by primary cancer GL
Monitoring of ablated liver metastases or primary tumors	One of the following, immediately prior to ablation, 1 month post-ablation, then every 3 months: • CT Abdomen without and with contrast (CPT® 74170) • MRI Abdomen without and with contrast (CPT® 74183) • CTA Abdomen (CPT® 74175) can be approved immediately prior to embolization Evaluation of hepatic artery catheters for chemotherapy infusion or Chemoembolization with radioactive spheres (TheraSphere or SIR Spheres): • Nuclear medicine liver imaging (one of CPT® 78201, 78202, 78205, 78206, 78215, or 78216) • PET is not indicated for evaluation of

	ablated liver lesions

See also: **ONC-1.2** for monitoring ablated malignant liver lesions

Practice Note:

Ablation of liver metastases or primary HCC may be performed utilizing chemical, chemotherapeutic, radiofrequency, or radioactive isotope. **Regardless of the modality of ablation, PET is not indicated for assessing response to this mode of therapy**.

ONC-31.3 Brain Metastases

Site of Metastases	Imaging Study(ies)
Individual with cancer and signs or symptoms of CNS disease or known brain metastasis with new signs or symptoms.	• MRI Brain without and with contrast (CPT® 70553)
Assess candidacy for stereotactic radiosurgical approach for brain metastases	• MRI Brain without and with contrast (CPT® 70553) using thin slice cuts if not already done within 30 days o If thin slice MRI done within 30 days and MRI needed for SRS treatment planning, planning code CPT® 76498 can be approved. These requests should be forwarded for Medical Director Review.
Monitoring of brain metastases treated with surgery or radiation therapy	Post-treatment, then every 3 months for 1 year: • MRI Brain without and with contrast (CPT® 70553) • PET Metabolic Brain (CPT® 78608) and MR Spectroscopy (CPT® 76390) are considered investigational and experimental for evaluation of metastatic brain cancer
Any of the following: • Solitary brain metastasis suspected in patient with prior	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast

diagnosis of cancer and **no diagnosis-specific guideline regarding PET imaging** • Brain metastases and no known primary tumor	• Mammography for female patients • PET/CT (CPT®78815 or 78816) is indicated for any of the following: o Inconclusive conventional imaging o Confirm either stable systemic disease or absence of other metastatic disease o When primary cancer known, PET request should be reviewed by primary cancer GL
Primary brain tumors	See: **ONC-2~Central Nervous System Tumors**

ONC-31.4 Adrenal Gland Metastases

Site of Metastases	Imaging Study(ies)
Differentiate benign adrenal adenoma from metastatic disease	See **AB-16~Adrenal Cortical Lesions**
All of the following and **no diagnosis-specific guideline regarding PET imaging** • Solitary adrenal metastasis ***and*** • Primary tumor site controlled and surgical resection or radiotherapy of an adrenal metastasis is potentially curative	• CT-directed needle biopsy (CPT® 77012) ***or*** • MRI Abdomen without (CPT® 74181) or without and with contrast (CPT® 74183) PET/CT (CPT® 78815) to confirm isolated lesion if conventional imaging does not reveal other metastatic disease o When primary cancer known, PET request should be reviewed by primary cancer GL • See also **AB-16.1**

ONC-31.5 Bone (including Vertebral) Metastases

Site of Metastases	Imaging Study(ies)
Any of the following in a patient with a current or prior malignancy: • Bone pain • Rising tumor markers • Elevated alkaline phosphatase.	• Bone scan (See **ONC-1.3**) supplemented by plain x-rays is the initial diagnostic imaging study of choice
Any of the following:	Any of the following may be approved:

• Any patient with stage IV cancer with new onset back pain* • Bone scan is not feasible or readily available • Continued suspicion despite inconclusive or negative bone scan or other imaging modalities • Neurological compromise • Soft tissue component suggested on other imaging modalities or physical exam • Differentiate neoplastic disease from Paget's disease of Bone	• MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), and Lumbar spine (CPT® 72158) without and with contrast • CT Cervical (CPT® 72127), Thoracic (CPT® 72130), and Lumbar spine (CPT® 72133) without and with contrast can be approved **if MRI is contraindicated or not readily available** o CT without contrast can be approved if there is a contraindication to CT contrast
Bone pain when both bone scan and either CT or MRI are inconclusive	• ^{18}F-FDG-PET/CT (CPT® 78815 or 78816) on a case-by-case basis **NOTE**: ^{18}F-NaF PET imaging (sodium fluoride, or "PET bone scan") is investigational. See: **ONC-1.1**
Suspected metastatic bone disease and negative work up for myeloma	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) with contrast
No prior cancer history with suspected pathologic fracture on plain x-ray	See: **ONC-31.7 Carcinoma of Unknown Primary Site**
Signs/symptoms concerning for spinal cord compression	See **ONC-31.6 Spinal Cord Compression**

*Patients with Stage IV cancer with new onset back pain can forgo a bone scan (and plain films) in lieu of an MRI with and without contrast of the spine.

ONC-31.6 Spinal Cord Compression

Site of Metastases	Imaging Study(ies)
Any of the following in a current or former cancer patient: • Any patient with stage IV cancer with new onset back pain • New back pain in any cancer patient persisting over two weeks • Back pain in any cancer patient that is	Any or all of the following may be approved: • MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), and Lumbar spine (CPT® 72158) without and with contrast • Post myelogram CT of the

rapidly progressive or refractory to aggressive pain management • Signs or symptoms of neurological compromise at the spinal cord level • Unexpected, sudden loss of bowel or bladder control • Sudden loss of ability to ambulate • Complete loss of pinprick sensation corresponding to a specific vertebral level • Loss of pain at a site that had previously been refractory to pain management	Cervical (CPT® 72126), Thoracic (CPT® 72129), and Lumbar spine (CPT® 72132)
Other pain, unilateral weakness, extremity tremors, unilateral change in reflexes, and radicular symptoms suggestive of nerve root involvement but not consistent with cord compression	• MRI without and with contrast of involved spinal segment

ONC-31.7 Carcinoma of Unknown Primary Site

Site of Metastases	Imaging Study(ies)
Carcinoma found in a lymph node or in an organ known not to be primary	• CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) • CT Neck with contrast (CPT® 70491) if cervical or supraclavicular involvement • CT with contrast or MRI without and with contrast of any other symptomatic site • For female patients: o Diagnostic (not screening) mammogram and full pelvic exam o MRI Bilateral Breasts (CPT® 77059) if pathology consistent with breast primary and mammogram is inconclusive
Sebaceous carcinoma of the skin (can be associated with underlying primary malignancy)	• CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) • CT Neck with contrast (CPT® 70491) if cervical or supraclavicular involvement • CT with contrast or MRI without and with contrast of any other symptomatic site
Axillary adenocarcinoma	• CT Neck (CPT® 70491), Chest (CPT® 71260), and Abdomen with contrast (CPT® 74160) • CT with contrast or MRI without and with contrast of any other symptomatic site • For female patients: o Diagnostic (not screening) mammogram and full pelvic exam o MRI Bilateral Breasts (CPT® 77059) if pathology consistent with breast primary and mammogram is inconclusive
Above studies have failed demonstrate site of primary	• PET/CT (CPT® 78815 or 78816)

Practice Note:

- Defined as carcinoma found in a lymph node or in an organ known not to be the primary for that cell type (e.g., adenocarcinoma arising in the brain or in a neck lymph node).

- This guideline also applies to metastatic melanoma when a detailed skin and mucosal surface examination has failed to find a primary site of disease.
- This guideline also applies to a pathologic fracture that is clearly due to metastatic neoplastic disease in a patient without a previous cancer history.
- Detailed history and physical examination, to include pelvic and rectal exams, laboratory tests, and CT as outlined above
- Patients presenting with a thoracic squamous cell carcinoma described as metastatic appearing on chest imaging, or in lymph nodes above the clavicle, should undergo a detailed head and neck examination by a clinician skilled in laryngeal and pharyngeal examinations, especially in smokers.
- Patients with suspected unknown primary based on only suspicious lytic bone lesions should be considered for serum protein electrophoresis (SPEP); urine protein electrophoresis (UPEP) and serum free light chains prior to consideration of extensive imaging

ONC-31.8 Extrathoracic Small Cell Carcinoma

Indication	Imaging Study(ies)
Initial staging	Any or all of the following are indicated: • CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) • MRI Brain without and with contrast (CPT® 70553) should be performed for symptoms of CNS involvement and for poorly differentiated neuroendocrine cancers of the neck or extrapulmonary thorax. • PET/CT (CPT® 78815) if no evidence of metastatic disease or conventional imaging is inconclusive for determining localized vs. distant metastatic disease
Restaging during treatment	• CT Chest (CPT® 71260) and Abdomen/Pelvis (CPT® 74177) and any known sites of disease with contrast every 2 cycles
Restaging (suspected recurrence)	Any or all of the following are indicated: • CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) • MRI brain without and with contrast (CPT® 70553) • Bone scan (See **ONC-1.3**) • **PET imaging is generally not indicated** but can be considered for rare circumstances. These requests should be forwarded for Medical Director Review.
Surveillance	• CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) every 4 months for initial 2 years,

	then annually to year 5

ONC-31.9 Primary Peritoneal Mesothelioma

Indication	Imaging Study(ies)
Initial staging	• CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) • PET/CT (CPT® 78815) if no evidence of metastatic disease or conventional imaging is inconclusive
Recurrence/Restaging	• If known prior disease, CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) • PET for inconclusive finding on conventional imaging
Surveillance	• CT Abdomen/Pelvis with contrast (CPT® 74177) every 3 months for 2 years, then every year of life

ONC-31.10 Kaposi's Sarcoma

Indication	Imaging Study(ies)
Kaposi's Sarcoma	• Advanced imaging is not generally indicated since disease is generally localized to skin. • CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) can be approved at initial diagnosis. If initial scans are negative then future imaging would be based on signs or symptoms.

ONC-31.11 Castleman's disease (unicentric and multicentric)

Indication	Imaging Studies
Initial staging	• Either CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) or PET/CT (CPT® 78815) • CT Neck with contrast (CPT® 70491) if cervical or supraclavicular involvement • If CT scans utilized initially and suggests unicentric disease, and surgical resection being considered, PET/CT (CPT® 78815) can be approved to confirm unicentric disease. • If unicentric disease is surgically removed, proceed to Surveillance section.
Any of the following: • Suspected recurrence • Recurrent B symptoms • Rising LDH/IL-	• For multicentric disease or surgically non-resected unicentric disease being treated with chemotherapy, either CT Chest (CPT® 71260) and Abdomen/Pelvis with contrast (CPT® 74177) or

6/VEGF levels	PET/CT (CPT® 78815) every 2 cycles
Surveillance	• CT with contrast of involved areas no more than every 6 months up to 5 years

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ONC-32~Medicare Coverage Policies for PET

ONC-32.1 Oncologic FDG PET

- The complete coverage policy is found in the Medicare National Coverage Determinations (NCD) Manual, Section 220.6.17: (see: http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/ncd103c1_Part4.pdf)

220.6.17 – Positron Emission Tomography (FDG PET) for Oncologic Conditions

General

FDG (2-[F18] fluoro-2-deoxy-D-glucose) PET is a minimally invasive diagnostic imaging procedure used to evaluate glucose metabolism in normal tissue, as well as in diseased tissues, in conditions such as cancer, ischemic heart disease, and some neurologic disorders. FDG is an injected radionuclide (or radiopharmaceutical that emits sub-atomic particles, known as positrons, as it decays. FDG PET uses a positron camera (tomograph) to measure the decay of FDG. The rate of FDG decay provides biochemical information on glucose metabolism in the tissue being studied. As malignancies can cause abnormalities of metabolism and blood flow, FDG PET evaluation may indicate the probable presence or absence of a majority based upon observed differences in biologic activity compared to adjacent tissues.

The Centers for Medicare and Medicaid Services (CMS) was asked by the National Oncologic PET Registry (NOPR) to reconsider section 220.6 of the National Coverage Determination (NCD) Manual to end the prospective data collection requirements under Coverage with Evidence Development (CED) across all oncologic indications of FDG PET imaging. The CMS received public input indicating that the current framework of prospective data collection under CED be ended for all oncologic uses of FDG PET imaging

1. Framework

Effective for claims with dates of service on and after June 11, 2013, CMS is adopting a coverage framework that ends the prospective data collection requirements by NOPR under CED for all oncologic uses of FDG PET imaging. CMS is making this change for all NCDs that address coverage of FDG PET for oncologic uses addressed in this decision. This decision does not change coverage for any use of PET imaging using radiopharmaceuticals NaF-18 (fluorine-18 labeled sodium fluoride), ammonia N-13, or rubidium-82 (Rb-82).

2. Initial Anti-Tumor Treatment Strategy

CMS continues to believe that the evidence is adequate to determine that the results of FDG PET imaging are useful in determining the appropriate initial anti-tumor treatment strategy for beneficiaries with suspected cancer and improve health outcomes and thus are reasonable and necessary under §1862(a)(1)(A) of the Social Security Act (the "Act").

Therefore, CMS continues to nationally cover one FDG PET study for beneficiaries who have cancers that are biopsy proven or strongly suspected based on other diagnostic testing when the beneficiary's treating physician determines that the FDG PET study is needed to determine the location and/or extent of the tumor for the following therapeutic purposes related to the initial anti-tumor treatment strategy:

- To determine whether or not the beneficiary is an appropriate candidate for an invasive diagnostic or therapeutic procedure; or
- To determine the optimal anatomic location for an invasive procedure; or
- To determine the anatomic extent of tumor when the recommended anti-tumor treatment reasonably depends on the extent of the tumor.

See the table at the end of this section for a synopsis of all nationally covered and non- covered oncologic uses of FDG PET imaging.

Initial Anti-Tumor Treatment Strategy Nationally Covered Indication Effective: June 11, 2013

- CMS continues to nationally cover FDG PET imaging for the initial anti-tumor treatment strategy for male and female breast cancer only when used in staging distant metastasis.
- CMS continues to nationally cover FDG PET to determine initial anti-tumor treatment strategy for melanoma other than for the evaluation of regional lymph nodes.
- CMS continues to nationally cover FDG PET imaging **biopsy proven cervical cancer** for the detection of pre-treatment metastasis (i.e., staging) in newly diagnosed cervical cancers following conventional imaging that is negative for extra-pelvic metastasis.

Initial Anti-Tumor Treatment Strategy Nationally Non-Covered Indication Effective: June 11, 2013

- CMS continues to nationally non-cover initial anti-tumor treatment strategy in Medicare beneficiaries who have adenocarcinoma of the prostate. CMS continues to nationally non-cover FDG PET imaging for diagnosis of breast cancer and initial staging of axillary nodes.

- CMS continues to nationally non-cover FDG PET imaging for initial anti-tumor treatment strategy for the evaluation of regional lymph nodes in melanoma.
- CMS continues to nationally non-cover FDG PET imaging for the diagnosis **(no biopsy result)** of cervical cancer related to initial anti-tumor treatment strategy.

3. Subsequent Anti-Tumor Treatment Strategy

Subsequent Anti-Tumor Treatment Strategy Nationally Covered Indication, Effective: June 11, 2013

Three FDG PET scans are nationally covered when used to guide subsequent management of anti-tumor treatment strategy after completion of initial anti-tumor therapy. Coverage of more than three FDG PET scans to guide subsequent management of anti-tumor treatment strategy after completion of initial anti-tumor therapy shall be determined by the local Medicare Administrative Contractors.

4. Synopsis of Coverage of FDG PET for Oncologic Conditions, Effective: June 11, 2013

Effective for claims with dates of service on and after June 11, 2013, the chart below summarizes national FDG PET coverage for oncologic conditions;

FDG PET for Solid Tumors and Myeloma Tumor Type	Initial Treatment Strategy (formerly "diagnosis" & "staging")	Subsequent Treatment Strategy (formerly "restaging" & "monitoring response to) treatment")
Colorectal	Cover	Cover
Esophagus	Cover	Cover
Head and Neck (not thyroid or CNS)	Cover	Cover
Lymphoma	Cover	Cover
Non-small cell lung	Cover	Cover
Ovary	Cover	Cover
Brain	Cover	Cover
Cervix	Cover with exceptions*	Cover
Small cell lung	Cover	Cover
Soft tissue sarcoma	Cover	Cover
Pancreas	Cover	Cover
Testes	Cover	Cover
Prostate	**Non-cover**	Cover
Thyroid	Cover	Cover
Breast (male and female)	Cover with exceptions*	Cover
Melanoma	Cover with exceptions*	Cover
All other solid tumors	Cover	Cover
Myeloma	Cover	Cover
All other cancers not	Cover	Cover

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

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

***Invasive Breast Cancer**: • Prior to surgical lymph node sampling: **NOT indicated** (unless planning neoadjuvant therapy) • Metastatic disease or suspicious lesions seen on CT and/or bone scan: **Indicated** • After completion of surgical lymph node sampling in place of CT scans: **Indicated**
Melanoma: Nationally non-covered for initial staging of regional lymph nodes. All other indications for initial anti-tumor treatment strategy for melanoma are nationally covered. • Prior to surgical lymph node sampling: **NOT indicated** • Metastatic disease or suspicious lesions seen on CT and/or bone scan: **Indicated** • After completion of surgical lymph node sampling in place of CT scans: **Indicated**

ONC-32.2 Oncologic Non-FDG PET

- **PET for Bone Metastases:**
  - PET using F-18 sodium fluoride (NaF-18) is advocated as being effective at identifying bone metastases.
  - Medicare does not cover these studies under the NCD, but may be reimbursed under CED.
  - In February 2011, NaF-18 PET studies were added to the National Oncologic Positron Emission Tomography Registry (NOPR) and CMS has accepted this registry as a qualifying clinical study for CED.
    - Providers should report these PET studies using the standard CPT® code set (7811-78816).
    - It is not appropriate to bill NaF-18 PET using nuclear medicine bone scan codes (e.g., CPT® 78320) as these codes do not accurately describe the nature of the imaging service.
    - The rendering facility should report the NaF-18 radiopharmaceutical with HCPCS code A9580.
    - CMS issued a decision memo December 15, 2015, extending CED eligibility for NaF-18 PET for an additional 24 months.

- **Coverage with Evidence Development (CED):**
  - CED is a program designed to make PET available to Medicare beneficiaries while at the same time gathering data regarding PET's effectiveness.
  - Under CED, Medicare will reimburse the claim if the beneficiary is enrolled in, and the PET provider is participating in, a qualifying prospective clinical trial or registry.

- Full details regarding qualifying clinical trials, including the list of required scientific integrity standards and relevance to the Medicare population are available in the Medicare NCD Manual, Section 220.6.17.
- Qualifying research trials must be registered on the www.ClinicalTrials.gov website by the principal sponsor/investigator, prior to the enrollment of the first study subject.

- **National Oncologic PET Registry (NOPR):**
  - Providers can meet Medicare's requirements for CED by submitting PET data to the National Oncologic PET Registry (NOPR).
  - A participating hospital or imaging center must submit information to the NOPR for all Medicare PET that falls under CED. This information includes pre- and post-study forms completed by the referring provider, as well as the final radiology report.
  - Providers cannot bill Medicare for the services until the NOPR notifies the facility that all required information has been received.
  - Imaging facilities cannot submit data to the NOPR for studies performed for covered indications.
  - For more information about the NOPR, see the registry website: www.cancerpetregistry.org

- **PET Oncologic Studies Using Other Radiopharmaceuticals:**
  - Medicare's National Coverage Determination for PET (NCD 220.6) sets specific requirements for oncologic scans performed with FDG and NaF-18 as well as cardiac imaging radiopharmaceuticals Ammonia N-13 and Rb-82.
  - Local Medicare contractors have the authority to make coverage decisions about oncologic studies performed with other agents.

ONC-32.3 Brain PET

- **CPT® 78608** is used to report FDG PET metabolic brain studies for dementia, seizure disorders, and dedicated PET tumor imaging studies of the brain.
- **CPT® 78609** is used to report PET brain perfusion studies that are not performed with FDG. These scans are nationally noncovered by Medicare.
- **Amyloid-beta(Aβ) PET Brain Studies:**
  - Medicare will reimburse for brain PET, performed with the radiopharmaceuticals that detect levels of amyloid in the human brain, only through CED.
  - Examples of these radiopharmaceuticals include Amyvid™ (florbetapir F18), Neuraceq™ (florbetaben F18) and Vizamyl™ (flutemetamol F18).

- CMS will cover one PET Aβ scan per patient through CED
- For CMS, approval with Coverage with Evidence Development (CED) is available for patients enrolled in clinical trials approved by CMS. See the following link for a list of the CMS approved clinical trials: https://www.cms.gov/Medicare/Coverage/Coverage-with-Evidence-Development/Amyloid-PET.html

- **FDG PET for Dementia and Neurodegenerative Diseases**
  - Medicare covers FDG PET for individuals with a recent diagnosis of dementia and documented cognitive decline of at least six months who meet diagnostic criteria for both Alzheimer's disease (AD) and front-temporal dementia (FTD).
  - The individual must have been evaluated for specific alternate neurodegenerative diseases or other causative factors, but the etiology of the symptoms remains unclear.
  - Other conditions must also be met. For the complete coverage policy, see the Medicare National Coverage Determinations (NCD) Manual, Section **220.6.13**.*
  - Medicare also covers FDG PET for individuals with mild cognitive impairment or early dementia when the study is performed in the context of a CMS-approved clinical trial. Requirements are detailed in Section **220.6.13** of the NCD Manual*.
  - All other uses of FDG PET for patients with a presumptive diagnosis of dementia-causing neurodegenerative disease for which CMS has not specifically indicated coverage continue to be noncovered. Examples of noncovered indications described in the NCD include: possible or probable AD, clinically typical FTD, dementia of Lewy bodies, and Creutzfield-Jacob disease.

*http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/ncd103c1_Part4.pdf

- **FDG PET for Refractory Seizures**
  - Medicare covers FDG PET for pre-surgical evaluation for the purpose of localization of a focus of refractory seizure activity.
  - The complete coverage policy is found in the Medicare National Coverage Determinations (NCD) Manual, **Section 220.6.9**: http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/ncd103c1_Part4.pdf

ONC-32.4 Cardiac PET

- **PET Myocardial Perfusion**

- Medicare covers PET for myocardial perfusion with rubidium (Rb-82) or ammonia (N-13) when one of the following conditions is met:
  - PET is performed in place of, but not in addition to, a SPECT, or
  - An individual has had an inconclusive SPECT. In these cases, the PET must be considered necessary in order to determine what medical or surgical intervention is required to treat the individual
- PET myocardial perfusion is reported with either CPT® 78491 or CPT® 78492.
- The complete coverage policy is found in the Medicare National Coverage Determinations (NCD) Manual, Section **220.6.1**: http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/ncd103c1_Part4.pdf

- **PET Myocardial Viability**
  - Medicare covers FDG PET for myocardial viability as a primary or initial diagnostic study prior to revascularization surgery, or following an inconclusive SPECT scan.
    - The study must be performed on a full or partial ring PET scanner.
    - When PET is performed following an inconclusive SPECT, Medicare will not cover a follow-up SPECT exam if the results of the PET are inconclusive.
    - PET myocardial viability is reported with CPT® 78459.
    - The complete coverage policy is found in the Medicare National Coverage Determinations (NCD) Manual, Section **220.6.8**: http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/ncd103c1_Part4.pdf

ONC-32.5 PET for Infection and Inflammation

- Medicare does not cover FDG PET for the following indications:
  - chronic osteomyelitis
  - infection of hip arthroplasty
  - fever of unknown origin
  - The complete coverage policy is found in the Medicare National Coverage Determinations (NCD) Manual, Section **220.6.16**: http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/ncd103c1_Part4.pdf

ONC-32.6 Breast Cancer Criteria PET

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

Medicare PET criteria for **Invasive Breast Cancer**:

- Prior to surgical lymph node sampling: **NOT indicated** (unless planning neoadjuvant therapy)
- Metastatic disease or suspicious lesions seen on CT and/or bone scan: **Indicated**
- After completion of surgical lymph node sampling in place of CT: **Indicated**

ONC-32.7 Melanoma PET

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

Medicare PET criteria for **Melanoma**:

- Prior to surgical lymph node sampling: **NOT indicated**
- Metastatic disease or suspicious lesions seen on CT and/or bone scan: **Indicated**
- After completion of surgical lymph node sampling in place of CT: **Indicated**