CLINICAL GUIDELINES

Oncology Imaging Guidelines

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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.

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Abbreviations for Oncology Guidelines

ACTH	adrenocorticotropic hormone		
AFP	alpha-fetoprotein		
ALKP	alkaline phosphatase	**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	**EOT**	end of therapy
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		
GTR	gross total resection	**HG**	high grade
HIV	human immunodeficiency disease		
HRPC	hormone refractory prostate cancer	**hypermet**	hypermetabolic
IFRT	Involved field radiation therapy	**inv**	invasive
LAR	low anterior resection	**LCIS**	lobular carcinoma in situ
LDH	lactate dehydrogenase	**LFT**	liver function tests
LND	Lymph node dissection		

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MALT	mucosa associated lymphoid tissue	**maint**	maintenance
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		
MWA	microwave ablation		
NaF	Sodium Fluoride		
NET	Neuroendocrine tumor		
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		
TLH	total laparoscopic hysterectomy		
TNM	tumor node metastasis staging system		
TSH	thyroid-stimulating hormone		
TURBT	trans-urethral resection of bladder tumor		
VIPoma	vasoactive intestinal polypeptide	**WLE**	wide local incision
WB-MRI	whole body MRI		
WM	Waldenstrom's macroglobulinemia	**WBXRT**	Whole brain radiation therapy

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ONC-1: General Guidelines

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ONC-1.0: General Guidelines

- A recent clinical evaluation (within 60 days) or meaningful contact (telephone call, electronic mail or messaging) should be performed prior to considering advanced imaging, unless the individual is undergoing guideline-supported scheduled off therapy surveillance evaluation or cancer screening. The clinical evaluation may include a relevant history and physical examination, including biopsy, appropriate laboratory studies, and results of non-advanced or advanced imaging modalities.
- Unless otherwise stated in the disease-specific guideline, a histological confirmation of malignancy (or recurrence) and the stage of disease is required to perform a medical necessity review of the requested imaging.
- Routine imaging of brain, spine, neck, chest, abdomen, pelvis, bones, or other body areas is not indicated except where explicitly stated in a diagnosis-specific guideline section, or if 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)
- Unless otherwise stated in the disease-specific guideline, advanced imaging of asymptomatic individuals is not routinely supported without signs or symptoms of systemic involvement of cancer.
- Conventional imaging performed prior to diagnosis should not be repeated unless there is a delay of at least 6 weeks since previous imaging and treatment initiation or there are new or significantly worsening clinical signs or symptoms

Phase	Imaging Timeframe
After definitive local therapy of primary tumor (surgery or radiation therapy)	◆ Follow surveillance guidelines
During adjuvant chemotherapy	◆ Follow surveillance guidelines
After ablative therapy	◆ See disease-specific guidelines
During chemotherapy or immunotherapy for measurable disease	◆ Every 2 cycles (generally every 6 to 8 weeks)
During endocrine/hormonal therapy for measurable disease	◆ Every 3 months
Measurable metastatic disease being monitored off therapy	◆ Every 3 months
Minimal metastatic disease on maintenance therapy	◆ Every 3 months
Surveillance for history of metastatic disease with complete response and being observed off-therapy	◆ Imaging typically not indicated beyond 5 years from completion of treatment for metastatic disease

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- Advanced imaging is not indicated for evaluation of in situ or non-invasive cancers or cancer surveillance after complete surgical removal of primary disease unless otherwise stated in the cancer-specific guidelines.
- Advanced imaging is not indicated for monitoring disease in individuals who choose to not receive standard oncologic therapy, but may be receiving alternative therapies or palliative care and/or hospice. All advanced imaging indicated for initial staging of the specific cancer type can be approved once when the individual is considering initiation of a standard therapeutic approach (surgery, chemotherapy, or radiation therapy).
- Brain imaging is performed for signs or symptoms of brain disease
  - MRI Brain without and with contrast (CPT® 70553) is the recommended study for evaluation of suspected or known brain metastases. If a non-contrast CT head shows suspicious lesion, MRI brain may be obtained to further characterize the lesion
  - CT without and with contrast (CPT® 70470) can be approved when MRI is contraindicated or not available, or if there is skull bone involvement
  - Certain malignancies including, but not limited to melanoma and lung cancer have indications for brain imaging for asymptomatic individuals
  - If stage IV disease is demonstrated elsewhere or if systemic disease progression is noted, refer to disease specific guidelines
  - Initiation of angiogenesis therapy is not an indication for advanced imaging of the brain in asymptomatic individuals (Avastin/Bevacizumab; < 3% risk of bleeding and < 1% risk of serious bleeding)
- Bone Scan:
  - Primarily used for evaluation of bone metastases in individuals with solid malignancies.
  - Indications for bone scan in individuals with history of malignancy include – bone pain, rising tumor markers, elevated alkaline phosphatase or in individuals with primary bone tumor.
  - For evaluation of suspected or known bony metastases, CPT® 78306 (Nuclear bone scan whole body), may be approved.
  - Radiopharmaceutical Localization scan SPECT (CPT® 78803 or CPT® 78831) or SPECT/CT (CPT® 78830 or CPT® 78832) may be approved as an add-on test for further evaluation of a specific area of interest.
  - CPT® codes 78300 (Nuclear bone scan limited), 78305 (Nuclear bone scan multiple areas) or 78315 do not have any indications in oncology nuclear medicine imaging.
- Bone scan supplemented by plain x-rays are the initial imaging modalities for suspected malignant bone pain. For specific imaging indications, see also:
  - **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
  - **ONC-31.5: Bone (including Vertebral) Metastases**
  - **ONC-31.6: Spinal Cord Compression**
  - **ONC-31.7: Carcinoma of Unknown Primary Site**

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- Delay PET/CT for at least 12 weeks after completion of radiation treatment, unless required sooner for imminent surgical resection.
- PET/CT 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.
- PET/CT may be indicated if:
  - Conventional imaging (CT, MRI or bone scan) reveals findings that are inconclusive or negative, with continued suspicion for recurrence
- Unless specified in diagnosis-specific guideline section PET/CT Imaging is NOT indicated for:
  - Infection, inflammation, trauma, post-operative healing, granulomatous disease, rheumatological conditions
  - Concomitantly with separate diagnostic CT studies
  - Conclusive evidence of distant or diffuse metastatic disease on recent conventional imaging studies
  - Metastatic disease in the central nervous system (CNS)
  - Lesions less than 8 mm in size
  - Follow up after localized therapy (i.e. radiofrequency ablation, embolization, stereotactic radiation, etc.)
  - Rare malignancies, due to lack of available evidence regarding the diagnostic accuracy of PET in rare cancers
  - Surveillance
    - Serial monitoring of individuals who are not currently receiving anti-tumor treatment or are receiving maintenance treatment
    - Serial monitoring of FDG avidity until resolution.
    - PET/CT avidity in a residual mass at the end of planned therapy is not an indication for PET/CT imaging during surveillance.
    - Residual mass that has not changed in size since the last conventional imaging does not justify PET imaging
- Unless otherwise specified for a specific cancer type, once PET has been documented to be negative for a given individual's cancer or all PET-avid disease has been surgically resected, PET should not be used for continued disease monitoring or surveillance.
- PET/MRI is generally not supported by eviCore for a vast majority of oncologic conditions due to lack of standardization in imaging technique and interpretation.
- The specific radiotracer planned to be used with PET/CT imaging is required to perform a medical necessity review. Indications for PET/CT imaging using non-FDG radiotracers are listed in diagnosis-specific guidelines.
  - Covered radiotracers:
    - ^{18}F-FDG
    - ^{68}Gallium DOTATATE (NETSPOT®) for low grade neuroendocrine tumors and medullary thyroid cancer

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- ^{64}Cu-DOTATATE (DETECTNET®) for low grade neuroendocrine tumors
- ^{68}Ga-DOTA-TOC for low grade neuroendocrine tumors
- ^{11}C Choline for prostate cancer
- ^{18}F-Fluciclovine (AXUMIN®) for prostate cancer
- ^{68}Ga PSMA-11 for prostate cancer
- ^{18}F Piflufolastat (Pylarify®) for prostate cancer
- Not covered radiotracers:
- ^{18}F-Na Fluoride PET bone scan
- ^{18}F Fluoroestradiol
- PET/CT imaging using isotopes other than those specified above

- Octreotide scan:
  - Specific for low and intermediate grade neuroendocrine tumors which express specific cell surface somatostatin receptors. See cancer specific guidelines for recommended use.
  - One of the following codes may be approved when Octreotide scan is requested:
  - CPT® 78802 (Radiopharmaceutical localization of tumor whole body single day study)
  - CPT® 78804 (Radiopharmaceutical localization of tumor whole body two or more days)
  - In addition to one of the above CPT codes, CPT® 78803 (Radiopharmaceutical localization of tumor SPECT), SPECT CPT® 78831, or hybrid SPECT/CT (CPT® 78830 or 78832) may be approved as an add-on test for further evaluation of a specific area of interest.

Clinical Trials

- Similar to investigational and experimental studies, clinical trial imaging requests will be considered to determine whether they meet Health Plan coverage and eviCore's evidence-based guidelines.

- Imaging studies which are inconsistent with established clinical standards, or are requested for data collection and not used in direct clinical management are not supported.

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ONC-1.1: Key Principles

AGE APPROPRIATE GUIDELINES	
Age of Individual	**Appropriate Imaging Guidelines**
≥18 years old at initial diagnosis	◆ Adult Oncology Imaging Guidelines, except where directed otherwise by a specific guideline section
<18 years old at initial diagnosis	◆ Pediatric Oncology Imaging Guidelines, except where directed otherwise by a specific guideline section
15 to 39 years old at initial diagnosis (defined as Adolescent and Young Adult (AYA) oncology individuals)	◆ When unique guidelines for a specific cancer type exist only in either Oncology or Pediatric Oncology, AYA individuals should be imaged according to the guideline section for their specific cancer type, regardless of the individual's age ◆ When unique guidelines for a specific cancer type exist in both Oncology and Pediatric Oncology, AYA individuals should be imaged according to the age rule in the previous bullet

- Conventional Imaging (mostly CT, sometimes MRI or bone scan) of the affected area(s) drives much of initial and re-staging and surveillance. PET is not indicated for surveillance imaging unless specifically stated in the diagnosis-specific guideline sections
- Brain imaging is performed for signs or symptoms of brain disease
  - MRI Brain without and with contrast (CPT® 70553) is the recommended study for evaluation of suspected or known brain metastases.
  - MRI Brain without and with contrast (CPT® 70553) may be obtained if a non-contrast CT Head shows suspicious lesion.
  - CT Head without and with contrast (CPT® 70470) can be approved when MRI is contraindicated or not available, or if there is skull bone involvement
  - Initiation of angiogenesis therapy is not an indication for advanced imaging of the brain in asymptomatic individuals (Avastin/Bevacizumab; <3% risk of bleeding and <1% risk of serious bleeding)
- Individuals receiving cardiotoxic chemotherapy (such as doxorubicin, trastuzumab, pertuzumab, mitoxantrone, etc.) may undergo cardiac evaluation – at baseline and for monitoring while on active therapy.
  - Echocardiography (CPT® 93306, CPT® 93307, or CPT® 93308) rather than MUGA scan for determination of LVEF and/or wall motion.
    - MUGA Scan may be performed instead of ECHO in individuals who have a low LV ejection fraction of <50% on a prior ECHO, pre-existing left ventricular wall motion abnormalities from ischemic or non-ischemic cardiomyopathies, congestive heart failure or when ECHO is technically limited and prevents accurate assessment of LV function.
    - A prior MUGA is not a reason to approve another MUGA (it is not necessary to compare LVEF by the same modality)

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- The timeframe for monitoring the ejection fraction should be determined by the provider, but no more often than baseline and at every 6 weeks.
- May repeat every 4 weeks if cardiotoxic chemotherapeutic drug is withheld for significant left ventricular cardiac dysfunction.
- See: **CD-12.1: Oncologic Indications for Cancer Therapeutics-Related Cardiac Dysfunction (CTRCD**) in the Cardiology Imaging Guidelines

- 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.
- Adults (≥18 years) with a diagnosis of Li-Fraumeni Syndrome (LFS) may be screened for malignancy with a Whole Body MRI (CPT® 76498) on an annual basis. Annual Brain MRI (CPT® 70553) may be performed as part of Whole Body MRI or as a separate exam. Due to lack of standardization of technique, interpretation, and availability of Whole Body MRI, individuals with LFS are encouraged to participate in clinical trials.

Use of Contrast

- CT imaging should be performed with contrast for known or suspected body regions, unless contraindicated.
  - Shellfish allergy is not a contraindication to contrast. Individuals with known shellfish allergy do not have contrast reaction any more often than other atopic individuals or individuals with other food allergies.
  - For iodinated contrast dye allergy, either CT scans without contrast or MRI scans without and with contrast are indicated.
  - If CT scanning is considered strongly indicated in a individual with known contrast allergy, CT with contrast may be considered to be safely performed following prednisone premedication over a 24-hour period prior to the study.
- For individuals with renal insufficiency which precludes contrast use, CT without contrast appropriate disease-specific areas should be offered. Further imaging (such as MRI) may be indicated if noncontrast CT results are inconclusive.
- Severe renal insufficiency, i.e. an eGFR less than 30, is a contraindication for an MRI using a gadolinium-based contrast agent (GBCA) as well. In individuals with eGFR greater than 40, GBCA administration can be safely performed. GBCA administered to individuals with acute kidney injury or severe chronic kidney disease can result in a syndrome of nephrogenic systemic fibrosis (NSF), but GBCAs are not considered nephrotoxic at dosages approved for MRI.
- Gadolinium deposition has been found in individuals with normal renal function following the use of gadolinium based contrast agents (GBCAs).
  - The U.S. Food and Drug Administration (FDA) is investigating the risk of brain deposits following repeated use of GBCAs.
  - The FDA has noted that, “It is unknown whether these gadolinium deposits are harmful or can lead to adverse health effects.” and have recommended:

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- To reduce the potential for gadolinium accumulation, health care professionals should consider limiting GBCA use to clinical circumstances in which the additional information provided by the contrast is necessary.
- Health care professionals are also urged to reassess the necessity of repetitive GBCA MRIs in established treatment protocols.

Radiation Exposure

- The use of MRI in place of CT scans to reduce risk of secondary malignancy from radiation exposure during CT 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.

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

Phases of Oncology Imaging	Definition
Screening	Imaging requested for individuals at increased risk for a particular cancer in the absence of known clinical signs or symptoms
Suspected Diagnosis	Imaging requested to evaluate a suspicion of cancer, prior to histological confirmation
Initial work-up and Staging	Imaging requested after biopsy confirmation and prior to starting specific treatment
Treatment response or Interim Restaging	Imaging performed during active treatment with chemotherapy, targeted therapy, immunotherapy, or endocrine therapy
Restaging of locally treated lesions	Imaging performed to evaluate primary or metastatic lesions with ablation using cryoablation, radiofrequency, radioactive isotope, microwave or chemotherapy
Restaging / Suspected Recurrence	Imaging requested when there is suspicion for progression or recurrence of known cancer based on clinical signs/symptoms, laboratory tests or basic imaging studies
Surveillance	Imaging performed in individuals who: ◆ Are asymptomatic or have chronic stable symptoms, and ◆ Have no clinical suspicion of change in disease status, and ◆ Are not receiving active anti-tumor treatment or are receiving maintenance treatment

General phase-related considerations

- Conventional imaging performed prior to diagnosis should not be repeated unless there is a delay of at least 6 weeks since previous imaging and treatment initiation or there are new or significantly worsening clinical signs or symptoms

Phase	Imaging Timeframe
After definitive local therapy of primary tumor (surgery or radiation therapy)	◆ Follow surveillance guidelines
During adjuvant chemotherapy or endocrine therapy	◆ Follow surveillance guidelines
After ablative therapy	◆ See disease-specific guidelines
During chemotherapy or immunotherapy for measurable disease	◆ Every 2 cycles (generally every 6 to 8 weeks)
During endocrine/hormonal therapy for measurable disease	◆ Every 3 months
Metastatic disease on maintenance therapy	◆ Every 3 months
Measurable metastatic disease being monitored off therapy	◆ Every 3 months for up to 5 years after completion of treatment for metastatic disease

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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: PET Imaging in Oncology**
- Bone Scan:
  - Primarily used for evaluation of bone metastases in individuals with solid malignancies.
  - Indications for bone scan in individuals with history of malignancy include – bone pain, rising tumor markers, elevated alkaline phosphatase or in individuals with primary bone tumor.
  - For evaluation of suspected or known bony metastases, CPT® 78306 (Nuclear bone scan whole body), may be approved.
    - Radiopharmaceutical Localization scan SPECT (CPT® 78803 or CPT® 78831) or SPECT/CT (CPT® 78830 or CPT® 78832) may be approved as an add-on test for further evaluation of a specific area of interest with prior positive whole body scan or documented bone metastasis.
  - CPT® codes 78300 (Nuclear bone scan limited), 78305 (Nuclear bone scan multiple areas) or 78315 do not have any indications in oncology nuclear medicine imaging.
- Octreotide scan:
  - Specific for low and intermediate grade neuroendocrine tumors which express specific cell surface somatostatin receptors. See cancer specific guidelines for recommended use.
  - One of the following codes may be approved when Octreotide scan is requested:
    - CPT® 78802 (Radiopharmaceutical localization of tumor whole body single day study)
    - CPT® 78804 (Radiopharmaceutical localization of tumor whole body two or more days)
  - In addition to one of the above CPT codes, CPT® 78803 (Radiopharmaceutical localization of tumor SPECT), SPECT CPT® 78831, or hybrid SPECT/CT (CPT® 78830 or 78832) may be approved as an add-on test for further evaluation of a specific area of interest.
- Bone marrow imaging:
  - This study is rarely performed for evaluation of the entire bone marrow in conditions like myeloproliferative disorders, sickle cell bone infarct or ischemia, avascular necrosis or myeloma
  - The correct CPT code for this study is CPT® 78104 (Diagnostic Nuclear Medicine Procedures on the Hematopoietic, Reticuloendothelial and Lymphatic System)
- Brain imaging SPECT with Technetium-99m or thallium-201 (CPT® 78803):
  - Immunocompromised individuals with mass lesion detected on CT or MRI for differentiation between lymphoma and infection
  - In distinguishing recurrent brain tumor from radiation necrosis

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- Radiopharmaceutical localization of tumor or distribution of radiopharmaceutical agent(s):
  - CPT® 78800, CPT® 78801, CPT® 78802, CPT® 78804, CPT® 78803, CPT® 78831 (SPECT), or CPT® 78830 or CPT® 78832 (SPECT/CT)
  - For evaluation of fever of unknown origin and osteomyelitis
  - For suspected infections such as infected central lines, grafts or shunts
- Gallium Isotope Scan:
  - Radiopharmaceutical Localization of tumor (CPT® 78800, CPT® 78801, CPT® 78802, CPT® 78803, or CPT® 78804), SPECT CPT® 78831, or hybrid SPECT/CT CPT® 78830 or 78832
  - This may be rarely used in place of PET/CT scan when PET/CT scan not available and PET/CT is indicated by guidelines for lymphoma, sarcoma, melanoma or myeloma

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ONC-1.4: PET Imaging in Oncology

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

- CPT codes:
  - PET imaging in oncology should use PET/CT fusion (CPT® 78815 or CPT® 78816) 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, and is reported with PET (CPT® 78811) or for PET/CT (CPT® 78814).
- Radiotracers:
  - Unless specified otherwise, the term “PET” refers to ^{18}F-FDG-PET and PET/CT fusion studies
  - Indications for PET/CT imaging using non-FDG radiotracers are listed in diagnosis-specific guidelines. The indications may be as follows:
- Covered:
  - ^{18}F-FDG
  - ^{68}Gallium DOTATATE (NETSPOT®) for low grade neuroendocrine tumors and medullary thyroid cancer
  - ^{64}Cu-DOTATATE (DETECTNET®) for low grade neuroendocrine tumors
  - ^{68}Ga-DOTA-TOC for low grade neuroendocrine tumors
  - ^{11}C Choline for prostate cancer
  - ^{18}F-Fluciclovine (AXUMIN®) for prostate cancer
  - ^{68}Ga PSMA-11 for prostate cancer
  - ^{18}F Piflufolastat (Pylarify®) for prostate cancer
- Not covered:
  - ^{18}F-Na Fluoride PET bone scan
  - ^{18}F Fluoroestradiol
  - PET/CT imaging using isotopes other than those specified above

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Most Common Isotopes				
CPT/ HCPCS Code	Code Description	Brand or common name	FDA approved?	Code reviewed by eviCore?
A9552	fluorine-18 (F-18) fluorodeoxyglucose (FDG), diagnostic, per study dose, up to 45 millicuries	FDG	Yes, to assess abnormal glucose metabolism	No
A9580	Sodium fluoride f-18, diagnostic, per study dose, up to 30 millicuries	N/A	Yes, for bone imaging	No
A9587	Gallium GA-68, dotatate, diagnostic, 0.1 millicurie	NETSPOT®	Yes, for localization of somatostatin receptor positive neuroendocrine tumors in adult and pediatric population	No
A9515	Choline C 11, diagnostic, per study dose	N/A	Yes, for suspected prostate cancer recurrence	No
A9588	^{18}F-Fluciclovine	AXUMIN®	Yes, for suspected prostate cancer recurrence	No
A9593 A9594	^{68}Ga PSMA-11	N/A	Yes, for newly diagnosed and suspected recurrence of prostate cancer	No
A9595	^{18}F Piflufolastat	Pylarify®	Yes, for newly diagnosed and suspected recurrence of prostate cancer	No
A9591	^{18}F Fluoroestradiol	Cerianna®	Yes, for the detection of estrogen receptor (ER)-positive lesions as an adjunct to biopsy in individuals with recurrent or metastatic breast cancer	No
A9592	^{64}Cu Copper dotatate	Detectnet®	Yes, for the localization of somatostatin receptor positive neuroendocrine tumors (NETs) in adult individuals	No
C9067	^{68}Ga Gallium-DOTA-TOC	N/A	Yes, for somatostatin receptor (SSTR) positive gastroenteropancreatic neuroendocrine tumors.	No

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- Unless specified in diagnosis-specific guideline section PET/CT Imaging is NOT indicated for:
  - Infection, inflammation, trauma, post-operative healing, granulomatous disease, rheumatological conditions
  - Concomitantly with separate diagnostic CT studies
  - Conclusive evidence of distant or diffuse metastatic disease on recent conventional imaging studies
  - Metastatic disease in the central nervous system (CNS)
  - Lesions less than 8 mm in size
  - Follow up after localized therapy (i.e. radiofrequency ablation, embolization, stereotactic radiation, etc.)
  - Rare malignancies, due to lack of available evidence regarding the diagnostic accuracy of PET in rare cancers
  - Surveillance
    - Serial monitoring of individuals who are not currently receiving anti-tumor treatment or are receiving maintenance treatment
    - Serial monitoring of FDG avidity until resolution.
    - PET/CT avidity in a residual mass at the end of planned therapy is not an indication for PET/CT imaging during surveillance.
    - Residual mass that has not changed in size since the last conventional imaging does not justify PET imaging
  - Unless otherwise specified for a specific cancer type, once PET has been documented to be negative for a given individual's cancer or all PET-avid disease has been surgically resected, PET should not be used for continued disease monitoring or surveillance.
- PET/CT may be indicated if:
  - Conventional imaging (CT, MRI or bone scan) reveals findings that are inconclusive or negative, with continued suspicion for recurrence
  - The individual 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 individual to transition from active treatment to surveillance.
  - PET/CT 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.
- PET/CT for rare malignancies is not covered by eviCore guidelines due to lack of available evidence regarding diagnostic accuracy of PET/CT in the majority of rare cancers. Conventional imaging studies should be used for initial staging and treatment response for these diagnoses. PET/CT can be approved if all of the following apply:
  - Conventional imaging (CT, MRI or bone scan) reveals equivocal or suspicious findings
  - No other specific metabolic imaging (MIBG, octreotide, technetium, etc.) is appropriate for the disease type

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- The submitted clinical information describes a specific decision regarding the individual's care that will be made based on the PET/CT results

- Delay PET/CT for at least 12 weeks after completion of radiation treatment, unless required sooner for imminent surgical resection.
- PET mammography (PEM, generally reported with CPT® 78811) is considered experimental and investigational at this time.

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ONC-1.5: Unlisted Procedure Codes in Oncology

- eviCore authorizes requests for CT or MRI associated with image-directed biopsy or radiation therapy treatment planning for some payors.
- eviCore does not routinely authorize requests for PET associated with image-directed biopsy or radiation therapy treatment planning.
- There is often no unique procedure code for a service performed solely for treatment planning purposes. AMA instructions in the CPT state that if no specific code exists for a particular service, the service is reported with an unlisted code.
- Advanced imaging being used for radiation therapy treatment planning should not be authorized using any of the diagnostic imaging codes for CT, MRI or PET. In the absence of written payor guidelines, advanced imaging performed in support of radiation therapy treatment planning should be reported with:
  - **CPT® 76498 for Unlisted MRI** – when MRI will be used for treatment planning of radiation therapy to be delivered ONLY to the brain, prostate and cervix. The use of this code for radiation treatment planning of any other cancers/body parts not listed above may be reviewed on a case-by-case basis.
  - **CPT® 76497 for Unlisted CT** – may NOT be used for radiation treatment planning. CT imaging performed in support of radiation therapy treatment planning is bundled in with the concurrent radiation treatment authorization codes and a separate authorization for treatment planning is not required.
  - **CPT® 78999 for Unlisted procedure, nuclear medicine (PET)** – eviCore does not perform prior authorization for this CPT code for any payor. This code may not be reviewed or offered as an alternative recommendation to the provider.
  - Imaging associated with image-directed biopsy should be reported with the corresponding interventional codes. See also: **Preface-4.2: CT-, MR-, or Ultrasound-Guided Procedures** in the Preface Imaging Guidelines**.**
  - For advanced imaging used solely for the purpose of Surgical planning, see: **Preface-4.3: Unlisted Procedures/Therapy treatment planning** in the Preface Imaging Guidelines

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ONC-1.6: Predisposition Syndromes

- For predisposition syndrome screening in adult individuals, see: **PEDONC-2: Screening Imaging in Cancer Predisposition Syndromes** in the **Pediatric Oncology Imaging Guidelines**

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ONC-2: Primary Central Nervous System Tumors

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ONC-2.1: Primary Central Nervous System Tumors – General Considerations

- 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.
- 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 ANY of the following:
  - Medically fragile individuals for whom attempted biopsy carries excess medical risk, as stated in writing by both the attending physician and surgeon.
  - 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.
- For evaluation of known or suspected spinal cord compromise, see: **ONC-31.6: Spinal Cord Compression**
- For suspected brain tumors in neurofibromatosis, see: **PEDONC-2: Screening Imaging in Cancer Predisposition Syndromes** in the **Pediatric Oncology Imaging Guidelines**
- 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** in the **Pediatric Oncology Imaging Guidelines**

Indication	Imaging Study
Characterization and follow up of all brain tumors	◆ MRI Brain without and with contrast (CPT® 70553) ◆ CT Head without and with contrast (CPT® 70470) can be approved when MRI is contraindicated or not available, or there is skull bone involvement ◆ CT Head (contrast as requested) can be approved for preoperative planning when requested by the operating surgeon
Preoperative planning or to clarify inconclusive findings on MRI or CT	◆ MRA Head (CPT® 70544) or CTA Head (CPT® 70496)
Within 24 to 72 hours following brain tumor surgery	◆ MRI Brain without and with contrast (CPT® 70553)
Clinical deterioration or development of new neurological features	◆ MRI Brain without and with contrast (CPT® 70553)

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

NOTE: Some payors 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
  - 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.

PET Brain Imaging (CPT® 78608 and CPT® 78609)

NOTE: Some payors 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
  - 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.
- 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, CPT® 78812, and CPT® 78813) and fusion PET/CT studies (CPT® 78814, CPT® 78815, or CPT® 78816) are not indicated in the evaluation or management of primary CNS tumors
- See: **HD-24: Other Imaging Studies** in the Head Imaging Guidelines for details on other advanced neuro-imaging studies

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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
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) ■ 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 (radiation therapy, etc.)	◆ MRI Brain without and with contrast (CPT® 70553)
For individuals undergoing chemotherapy treatment	◆ MRI Brain without and with contrast (CPT® 70553) every 2 cycles ◆ Individuals with spinal cord involvement at diagnosis can have MRI without and with contrast of the involved spinal region on the same schedule as MRI brain

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Indication	Imaging Study
ONE of the following: ◆ Determine need for biopsy when transformation to high grade glioma is suspected based on clinical symptoms or 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	◆ Any of the following: ■ PET Brain Metabolic Imaging (CPT® 78608) ■ MRI Perfusion imaging (CPT® 70553)
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	◆ Any of the following: ■ MR Spectroscopy (CPT® 76390) ■ MRI Perfusion imaging (CPT® 70553)
Surveillance	◆ MRI Brain without and with contrast (CPT® 70553) every 3 months for 2 years, then every 6 months for 3 years, then annually ◆ Individuals with spinal 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

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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 include 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
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) ■ 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 contrast (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 individuals undergoing chemotherapy treatment	◆ MRI Brain without and with contrast (CPT® 70553) every 2 cycles ◆ Individuals with spinal cord involvement at diagnosis can have MRI without and with contrast of the involved spinal region on the same schedule as MRI Brain

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Indication	Imaging Study
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	ANY of the following: ◆ MR Spectroscopy (CPT® 76390) ◆ MRI Perfusion imaging (CPT® 70553)
ONE of the following: ◆ Distinguish radiation-induced tumor necrosis from progressive disease ◆ 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	ANY of the following: ◆ MRI Perfusion imaging (CPT® 70553) ◆ 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 individual outcomes
Surveillance	◆ MRI Brain without and with contrast (CPT® 70553) every 3 months for 3 years and every 6 months thereafter ◆ Individuals with spinal 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

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

- Medulloblastoma and sPNET imaging indications in adult individuals are identical to those for pediatric individuals. See: **PEDONC-4.4: Medulloblastoma (MDB), Supratentorial Primitive Neuroectodermal Tumors (sPNET), and Pineoblastoma** in the **Pediatric Oncology Imaging Guidelines**.

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ONC-2.5: Ependymoma

- Ependymoma imaging indications in adult individuals are identical to those for pediatric individuals. See: **PEDONC-4.8: Ependymoma** in the **Pediatric Oncology Imaging Guidelines**.

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ONC-2.6: Central Nervous System Germ Cell Tumors

- Central nervous system germ cell tumor imaging indications in adult individuals are identical to those for pediatric individuals. See: **PEDONC-4.7: CNS Germinomas and Non-Germinomatous Germ Cell Tumors (NGGCT)** in the **Pediatric Oncology Imaging Guidelines**.

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ONC-2.7: CNS Lymphoma (also known as Microglioma)

Indication	Imaging Study
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 *Individuals with CNS Lymphoma that is metastatic should be imaged according to: ◆ **ONC-27: Non-Hodgkin Lymphomas** for individuals age ≥18 years ◆ **PEDONC-5.3: Pediatric Aggressive Mature B-Cell Non-Hodgkin Lymphomas (NHL)** in the Pediatric Oncology Imaging Guidelines for individuals age ≤17 years	ANY or ALL of the following are indicated: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (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 thereafter

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ONC-2.8: Meningiomas (Intracranial and Intraspinal)

Indication	Imaging Study
Initial Staging of Intracranial Meningioma	ANY or ALL of the following are indicated: ◆ MRI Brain without and with contrast (CPT® 70553) ◆ CT Head (contrast as requested)
Initial staging of Intraspinal Meningioma	ONE of the following: ◆ MRI without and with contrast of appropriate spinal region (Cervical CPT® 72156, Thoracic CPT® 72157, and Lumbar CPT® 72158) ◆ CT without and with contrast of the appropriate spinal region (Cervical CPT® 72127, Thoracic CPT® 72130, and Lumbar CPT® 72133)
Treatment Response	◆ MRI without and with contrast of all positive disease sites every 2 cycles
Surveillance for Grade I (low grade) and Grade II (atypical) Meningioma (completely resected, partially resected and unresected)	◆ Intracranial Meningioma: MRI Brain without and with contrast (CPT® 70553) at 3, 6, and 12 months, then annually for 5 years ◆ Intraspinal Meningioma: MRI without and with contrast (CPT® 72156 [Cervical spine], CPT® 72157 [Thoracic spine], CPT® 72158 [Lumbar spine]) OR CT without and with contrast (CPT® 72127 [Cervical spine], CPT® 72130 [Thoracic spine], CPT® 72133 [Lumbar spine]) of the involved spinal level at 3, 6 and 12 months, and then annually for 5 years
Surveillance for Grade III (malignant or anaplastic) Meningioma	◆ Intracranial Meningioma: MRI Brain without and with contrast (CPT® 70553) every 3 months for 3 years, and then every 6 months thereafter ◆ Intraspinal Meningioma: MRI or CT without and with contrast of the involved spinal region every 3 months for 3 years and then every 6 months thereafter

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ONC-2.9: Spinal Cord Tumors (Benign and Malignant)

- See: **ONC-2.2: Low Grade Gliomas** and **ONC-2.3: High Grade Gliomas** for imaging guidelines of low grade and high grade gliomas of the spinal cord
- See: **PEDONC-4.9: Malignant Tumors of the Spinal Cord** in the **Pediatric Oncology Imaging Guidelines** for other malignant spinal cord tumors
- See: **PEDPN-2.1: Neurofibromatosis 1** and **PEDPN-2.2: Neurofibromatosis 2** in the **Pediatric Oncology Imaging Guidelines** for spinal tumors in individuals with Neurofibromatosis 1 or 2
- See: **ONC-31.6: Spinal Cord Compression** for known secondary malignancy involving the spine/spinal canal/spinal cord

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ONC-2.10: Choroid Plexus Tumors

- Choroid Plexus Tumor imaging indications in adult individuals are identical to those for pediatric individuals. See: **PEDONC-4.13: Choroid Plexus Tumors** in the **Pediatric Oncology Imaging Guidelines**.

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ONC-3: Squamous Cell Carcinomas of the Head and Neck

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ONC-3.0: Squamous Cell Carcinomas of the Head and Neck – General Considerations

- Individuals with esthesioneuroblastoma should be imaged according to this guideline section
- Stage III/IV disease encompasses any primary tumor larger than 4 cm or documented lymph node positive disease

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ONC-3.1: Squamous Cell Carcinomas of the Head and Neck – Suspected/Diagnosis

- See: **NECK-5.1 – Neck Masses - Imaging** in the **Neck 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

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ONC-3.2: Squamous Cell Carcinomas of the Head and Neck – Initial Work-up/Staging

Indication	Imaging Study
All Stages of Disease	◆ CT Neck with contrast (CPT® 70491) **or** MRI Orbits/Face/Neck (OFN) without and with contrast (CPT® 70543) ◆ 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
Nasal cavity and paranasal sinuses (bony erosion or skull base and intracranial involvement)	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 ▪ 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 ◆ Prior to start of primary chemoradiotherapy and have not undergone definitive surgical resection ◆ Nasopharyngeal primary site ◆ Inconclusive findings on conventional imaging (CT, MRI) ◆ In order to direct laryngoscopy/exam under anesthesia for biopsy ◆ Pulmonary nodule(s) ≥8 mm in size ◆ Cervical lymph node biopsy positive for squamous cell carcinoma and no primary site identified on CT or MRI Neck and Chest ◆ 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)
Any head and neck cancer with neurological findings or suspicion of skull base invasion	◆ MRI Brain without and with contrast (CPT® 70553)

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ONC-3.3: Squamous Cell Carcinomas of the Head and Neck – Restaging/Recurrence

Indication	Imaging Study
Following complete resection and/or radical neck dissection	See: **ONC-3.4: Surveillance/Follow-up**
Following primary chemoradiotherapy or radiation therapy in individuals who have not undergone surgical resection of primary tumor or neck dissection	ONE of the following: ◆ CT Neck with contrast (CPT® 70491); **or** ◆ MRI Orbits/Face/Neck without and with contrast (CPT® 70543); **or** ◆ PET/CT (CPT® 78815) no sooner than 12 weeks (3 months) post completion of radiation therapy ■ If post-treatment PET/CT scan is negative, further surveillance imaging is not routinely indicated.
Induction chemotherapy response	◆ CT Neck with contrast (CPT® 70491) or MRI Orbits/Face/Neck without and with contrast (CPT® 70543) ◆ PET not indicated to assess response to induction chemotherapy
Suspected local recurrence	◆ CT Neck with contrast (CPT® 70491) or MRI Orbits/Face/Neck without and with contrast (CPT® 70543) ◆ CT Chest with contrast (CPT® 71260)
Biopsy proven local recurrence	ONE of the following: ◆ PET/CT (CPT® 78815) **or** ◆ CT Neck with contrast (CPT® 70491) or MRI Orbits/Face/Neck without and with contrast (CPT® 70543) and CT Chest with contrast (CPT® 71260)
Inconclusive conventional imaging (CT or MRI)	◆ PET/CT (CPT® 78815)
If new symptoms or chest previously involved	◆ CT Chest with contrast (CPT® 71260)

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ONC-3.4: Squamous Cell Carcinomas of the Head and Neck – Surveillance/Follow-up

Indications	Imaging Study
Individuals treated with surgical resection of primary site and/or neck dissection (with or without postoperative radiation therapy)	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
Individuals treated with definitive radiation therapy or combined chemoradiation, and post-treatment imaging is negative	Further surveillance imaging is not routinely indicated
If post-treatment imaging shows residual abnormalities	ONE of the following, once within 6 months of prior imaging: ◆ CT Neck with contrast (CPT® 70491) OR ◆ MRI Orbits/Face/Neck without and with contrast (CPT® 70543)
After initial post-treatment study, for ANY of the following: ◆ Nasopharyngeal primary site ◆ Physical exam unable to visualize deep-seated primary site	Annually for 3 years: ◆ CT Neck with contrast (CPT® 70491) **or** MRI Orbits/Face/Neck without and with contrast (CPT® 70543)
◆ CT Chest is not indicated for surveillance. Individuals with smoking history may undergo annual low dose CT cancer screening if criteria are met (See: **CH-33: Lung Cancer Screening** in the Chest Imaging Guidelines)	

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ONC-4: Salivary Gland Cancers

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ONC-4.0: Salivary Gland Cancers – General Considerations

- Salivary gland tumors may originate within the parotid, submandibular, sublingual or minor salivary glands in the mouth.
- Histological subtypes include:
  - Mucoepidermoid
  - Acinic
  - Adenocarcinoma
  - Adenoid cystic carcinoma
  - Malignant myoepithelial tumors
  - Squamous cell carcinoma
  - Lymphoma and metastatic squamous carcinoma can occur in the parotid gland
- Over 80% of parotid gland tumors are benign. A bilateral parotid tumor is most likely Warthin's tumor.
- The role of PET in salivary gland tumors is considered experimental, investigational, or unproven.

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ONC-4.1: Salivary Gland Cancers – Suspected/Diagnosis

- See: **NECK-11: Salivary Gland Disorders** and **NECK-5.1: Imaging** in the Neck Imaging Guidelines for evaluation of salivary gland masses, salivary gland stones and neck masses.

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ONC-4.2: Salivary Gland Cancers – Initial Work-up/Staging

Indication	Imaging Study
Biopsy-proven malignancy (only if none of these imaging studies has already been done)	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)
Pulmonary nodule(s) ≥8mm in size	◆ PET/CT (CPT® 78815)

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ONC-4.3: Salivary Gland Cancers – Restaging/Recurrence

Indication	Imaging Study
Individuals 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 individuals: ◆ CT Chest with contrast (CPT® 71260)
All other individuals	◆ No routine advanced imaging indicated

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ONC-4.4: Salivary Gland Cancers – Surveillance/Follow-up

Indication	Imaging Study
Total surgical resection	◆ No routine advanced imaging indicated
Unresectable or partially resected disease, including those treated with radiation therapy	◆ Either CT Neck with contrast (CPT® 70491) or MRI Orbits/Face/Neck without and with contrast (CPT® 70543) once within 6 months of completion of treatment

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ONC-5: Melanomas and Other Skin Cancers

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ONC-5.0: Melanoma – General Considerations

- Melanomas can metastasize in an unpredictable fashion.

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ONC-5.1: Melanoma – Suspected/Diagnosis

Indication	Imaging Study
All	◆ Imaging is not indicated until histologic diagnosis is confirmed

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ONC-5.2: Melanoma – Initial Work-up/Staging

Indication	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 (SLN) evaluation
Any of the following: ◆ Stage III (sentinel node positive, palpable regional nodes) ◆ Stage IV (metastatic)	◆ PET/CT (CPT® 78815 or CPT® 78816) OR ◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Brain without and with contrast (CPT® 70553)
◆ Head or neck primary site ◆ Palpable lymphadenopathy in the neck ◆ Mucosal melanoma of the head or neck region	In addition to above initial staging imaging, if PET/CT not performed: ◆ CT Neck with contrast (CPT® 70491)
◆ Primary site of melanoma is unknown **and** CT Chest, Abdomen, and Pelvis are negative	◆ PET/CT (CPT® 78815 or CPT® 78816)

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ONC-5.3: Melanoma – Restaging/Recurrence

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

Indication	Imaging Study
Individuals receiving chemotherapy, with measurable disease, every 2 cycles (commonly every 6 to 8 weeks)	◆ CT Chest with contrast (CPT® 71260); **and** CT Abdomen and Pelvis with contrast (CPT® 74177)
All in situ recurrences	◆ Restaging imaging is not needed after adequate aggressive local therapy (See Surveillance below)
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 with contrast (CPT® 71260); **and** CT Abdomen and Pelvis with contrast (CPT® 74177) In addition, for all individuals: ◆ MRI Brain without and with contrast (CPT® 70553)
ANY of the following: ◆ Inconclusive findings on conventional imaging ◆ Isolated metastatic site found on conventional imaging	◆ PET/CT (CPT® 78815 or CPT® 78816)
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)

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ONC-5.4: Melanoma – Surveillance/Follow-up

Indication	Imaging Study
Stage 0, IA, IB and IIA Melanomas	◆ No routine advanced imaging indicated
Stage IIB, IIC, IIIA and IIIB Melanomas	◆ CT Chest (CPT® 71260) **and** CT Abdomen and Pelvis (CPT® 74177) with contrast every 6 months for 2 years, then annually for 3 years
Stage IIIC and IV Melanomas	◆ CT Chest (CPT® 71260) **and** CT Abdomen and Pelvis (CPT® 74177) with contrast every 3 months for 2 years, then every 6 months for 3 years ◆ MRI Brain without and with contrast (CPT® 70553) annually for 3 years
Mucosal Melanoma of the head or neck region	In addition to above stage-based surveillance imaging, the following may be obtained 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
Liver metastases treated with focal therapy	◆ See: **ONC-31.2: Liver Metastases**

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ONC-5.5: Non-Melanoma Skin Cancers – General Considerations

- Advanced imaging is generally not indicated for basal cell and squamous cell skin cancers
- PET/CT scan is not indicated for evaluation of non-melanoma skin cancers unless specified within the guidelines below (e.g. Merkel cell carcinoma)
- Merkel cell carcinoma is an unusual skin cancer with neuroendocrine-like histologic features, which has a high propensity (25% to 33%) for regional lymph node spread and occasionally, metastatic spread to lungs.
- 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.

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ONC-5.6: Non-Melanoma Skin Cancers – Initial Work-up/Staging

Indication	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 CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ PET/CT (CPT® 78815 or 78816) 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 CT Chest (CPT® 71260) with contrast
Merkel Cell carcinoma	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of other involved body area(s) ◆ PET/CT (CPT® 78815 or 78816) if inconclusive conventional imaging ◆ Lymph system imaging (lymphoscintigraphy, CPT® 78195) for sentinel lymph node evaluation
Signs or symptoms of CNS involvement	◆ MRI Brain with and without contrast (CPT® 70553)

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ONC-5.7: Non-Melanoma Skin Cancers – Restaging/Recurrence

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

Indication	Imaging Study
Recurrence where planned therapy is more extensive than simple wide local excision	◆ CT with contrast of the primary and recurrent site(s)
Suspected or biopsy-proven recurrence of Merkel cell carcinoma	◆ CT Chest (CPT® 71260) **and** CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ CT with contrast of other symptomatic body area(s)
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815 or 78816)
Signs or symptoms of CNS involvement	◆ MRI Brain without and with contrast (CPT® 70553)

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ONC-5.8: Non-Melanoma Skin Cancers – Surveillance/Follow-up

Indication	Imaging Study
Merkel cell cancer – only if node positive	◆ CT Chest (CPT® 71260) and CT Abdomen and 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	◆ Routine advanced imaging for surveillance is not indicated ◆ Imaging indicated only for signs and symptoms of recurrent disease

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ONC-5.9: Ocular Melanoma

General Considerations

- Approximately 95% of ocular melanomas arise from the uvea (iris, ciliary body and choroid) and 5% arise from the conjunctiva or orbit.
- Treatment is directed to the affected eye with systemic therapy reserved only for known metastatic disease.
- The most common site of metastatic disease is the liver.
- Surveillance of the affected eye is with clinical examination only; advanced imaging is supported for surveillance of systemic metastatic disease based on individual risk factors. See risk categories below for surveillance recommendations.

Ocular Melanoma Risk Categories		
Low Risk	**Medium Risk**	**High Risk**
T1	T2 and T3	T4
Class IA	Class IB	Class 2
Spindle cell histology	Mixed Spindle and Epitheloid cells	Epitheloid cell histology
No extraoccular extension	No extraoccular extension	Extraoccular extension present
No ciliary body involvement	No ciliary body involvement	Ciliary body involvement present
Chromosome mutations: ◆ Disomy 3 ◆ EIF1AX mutation ◆ Gain of chromosome 6p	Chromosome mutations: ◆ SF3B1 mutation	Chromosome mutations: ◆ BAP1 mutation ◆ PRAME mutation ◆ Monosomy 3 ◆ Gain of chromosome 8q

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Indication	Imaging Study
Initial staging	ANY or ALL of the following: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Orbits/Face/Neck without and with contrast (CPT® 70543)
Neurological signs/symptoms	◆ MRI Brain without and with contrast (CPT® 70553)
Restaging/Suspected Recurrence	ANY or ALL of the following: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Orbits/Face/Neck without and with contrast (CPT® 70543) ◆ MRI Brain without and with contrast (CPT® 70553)
Surveillance for Low Risk disease	Annually for 10 years: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen with contrast (CPT® 74160) or MRI Abdomen without and with contrast (CPT® 74183)
Surveillance for Medium Risk disease	Every 6 months for 2 years and then annually up to year 10: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen with contrast (CPT® 74160) or MRI Abdomen without and with contrast (CPT® 74183)
Surveillance for High Risk disease	Every 3 months for 2 years, every 6 months for 3 years, then annually up to year 10: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen with contrast (CPT® 74160) or MRI Abdomen without and with contrast (CPT® 74183)

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ONC-6: Thyroid Cancer

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ONC-6.0: Thyroid Cancer – General Considerations

- Whole Body Thyroid Nuclear scan is coded with CPT® 78018. If CPT® 78018 is obtained and found to be positive, CPT® 78020 may be approved as an add-on test to evaluate the degree of iodine uptake.
- Single photon emission computed tomography (SPECT) imaging – Radiopharmaceutical Localization of Tumor SPECT (CPT® 78803 or CPT® 78831) or SPECT/CT Hybrid study (CPT® 78830, or CPT® 78832) may complement planar and pinhole imaging and can be approved as an add-on wherever radioiodine scans are indicated.

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ONC-6.1: Thyroid Cancer – Suspected/Diagnosis

- See: **NECK-8.1: Thyroid Nodule** in the Neck Imaging Guidelines for suspected thyroid malignancies

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ONC-6.2: Thyroid Cancer – Initial Work-up/Staging

Follicular, Papillary and Hürthle Cell Carcinomas	Imaging Study
ONE of the following: ◆ Fixation suggested by clinical exam and/or ultrasound ◆ Substernal or bulky disease ◆ Disease precluding full ultrasound examination	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.
Post-thyroidectomy to assess thyroid remnant and to look for iodine-avid metastases for ONE of the following: ◆ Extent of thyroid remnant cannot be accurately ascertained from the surgical report or neck ultrasound ◆ When the results may alter the decision to treat ◆ Prior to administration of RAI therapy	◆ Whole Body Thyroid Nuclear scan (CPT® 78018) ◆ The following may be approved as an add-on test: ■ CPT® 78020 to evaluate the degree of iodine uptake AND/OR ■ SPECT (CPT® 78803, or CPT® 78831), OR SPECT/CT Hybrid study (CPT® 78830, or CPT® 78832)
Skeletal pain	◆ Bone scan See also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology** ◆ Whole Body Thyroid Nuclear scan (CPT® 78018) ◆ The following may be approved as an add-on test: ■ CPT® 78020 to evaluate the degree of iodine uptake AND/OR ■ SPECT (CPT® 78803 or CPT® 78831), OR SPECT/CT Hybrid study (CPT® 78830, or CPT® 78832)
Suspicious findings on Chest X-ray, US, or substernal extension of mass	◆ CT Chest without contrast (CPT® 71250)
All other individuals	◆ Routine preoperative advanced imaging is not indicated

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Medullary Thyroid Carcinomas	Imaging Study
ANY of the following: ◆ Elevated CEA levels ◆ Calcitonin level >400pg/mL ◆ Positive lymph nodes	ANY or ALL of the following: ◆ CT Neck with contrast (CPT® 70491) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen with contrast (CPT® 74160) **or** CT Abdomen without and with contrast (CPT® 74170) ◆ Bone scan see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
Skeletal pain	◆ Bone scan see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
Inconclusive findings on conventional imaging	◆ ^{68}Gallium-labeled 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 and Pelvis with contrast (CPT® 74177) ◆ MRI Brain without and with contrast (CPT® 70553) ◆ Bone scan see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
Skeletal pain	◆ Bone scan see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
Inconclusive finding on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-6.3: Thyroid Cancer – Restaging/Recurrence

Follicular, Papillary and Hürthle Cell Carcinomas	Imaging Study
Gross residual disease found in the neck post-thyroidectomy	ANY one of the following: ◆ CT Neck with contrast (CPT® 70491) ◆ MRI Neck without and with contrast (CPT® 70543)
Within 2 weeks (ideally 7 to 10 days) following the administration of Radioactive Iodine therapy	◆ Whole body thyroid nuclear scan (CPT® 78018) ◆ The following may be approved as an add-on test: ■ CPT® 78020 to evaluate the degree of iodine uptake ■ SPECT (CPT® 78803, or CPT® 78831), or SPECT/CT Hybrid study (CPT® 78830, or CPT® 78832)
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	ALL of the following: ◆ CT Neck with contrast (CPT® 70491) or MRI Neck without and with contrast (CPT® 70543) ◆ CT Chest with contrast (CPT® 71260) ◆ CT with contrast of any symptomatic body area ◆ Whole body Thyroid Nuclear Scan (CPT® 78018) ■ The following may be approved as an add-on test: ▪ CPT® 78020 to evaluate the degree of iodine uptake ▪ SPECT (CPT® 78803 or CPT® 78831), or SPECT/CT Hybrid study (CPT® 78830, or CPT® 78832)
ANY of the following: ◆ Rising thyroglobulin level with negative CT scan and radioiodine scan ◆ Inconclusive findings on conventional imaging (CT scan or radioiodine scan)	◆ PET/CT (CPT® 78815)

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Medullary Thyroid Carcinoma	Imaging Study
ANY of the following: ◆ Elevated CEA levels ◆ Calcitonin level ≥150 pg/mL ◆ 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) ◆ Bone scan See also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
Inconclusive conventional imaging with calcitonin ≥150 pg per mL	◆ ^{68}Gallium-labeled DOTATATE PET/CT (CPT® 78815)

Anaplastic Thyroid Carcinoma	Imaging Study
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 and Pelvis with contrast (CPT® 74177) **OR** MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast ◆ MRI Brain without and with contrast (CPT® 70553)
Inconclusive conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-6.4: Thyroid Cancer – Surveillance/Follow-up

Follicular, Papillary and Hürthle Cell Carcinomas	Imaging/Diagnostic Study
All individuals	◆ Neck ultrasound (CPT® 76536), Chest X-ray, and laboratory studies every 6 months for the first year, then annually
For individuals with ANY of the following: ◆ Node positive disease ◆ RAI-avid metastases	◆ Whole body Thyroid Nuclear Scan annually (CPT® 78018) ◆ The following may be approved as an add-on test: ■ CPT® 78020 to evaluate the degree of iodine uptake ■ SPECT (CPT® 78803, or CPT® 78831), OR SPECT/CT Hybrid study (CPT® 78830, or CPT® 78832)

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

Anaplastic Thyroid Carcinomas	Imaging Study
All individuals	Every 3 months for 2 years: ◆ CT Neck with contrast (CPT® 70491) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Brain without and with contrast (CPT® 70553)

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ONC-7: Small Cell Lung Cancer

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ONC-7.0: Small Cell Lung Cancer – General Considerations

- Combined histologies of Small and Non-Small cell are considered Small cell lung cancer. Use this guideline for imaging recommendations for small and large cell high-grade (poorly differentiated) neuroendocrine tumors of the lung.
- Imaging is presently guided by traditional staging of limited or extensive disease.
  - 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.
- Individuals 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, follow **ONC-31.1: Lung Metastases** for work-up of nodule.
- For carcinoid (low grade neuroendocrine tumors) of the lung, see: **ONC-15: Neuroendocrine Cancers and Adrenal Tumors**

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ONC-7.1: Small Cell Lung Cancer – Suspected/Diagnosis

Indication	Imaging Study
◆ Abnormal chest x-ray or clinical suspicion remains high despite a normal chest x-ray in symptomatic individual	◆ CT Chest without contrast (CPT® 71250) **or** ◆ CT Chest with contrast (CPT® 71260)
◆ Pulmonary nodule <8 mm in size noted on CT Chest	◆ See: **CH-16.2: Incidental Pulmonary Nodules Detected on CT Images** in the Chest Imaging Guidelines
◆ Pulmonary nodule 8 mm (0.8 cm) to 30 mm (3 cm) seen on CT Chest or MRI Chest	◆ See: **CH-16.4: PET** in the Chest Imaging Guidelines ◆ If PET is Positive: Qualifies as initial staging PET/CT ◆ Biopsy is indicated prior to PET imaging for pulmonary masses ≥31 mm (3.1 cm) in size
◆ Mediastinal/Hilar Mass	See: **CH-2: Lymphadenopathy** in the Chest Imaging Guidelines
◆ Paraneoplastic syndrome suspected	See: **ONC-30.3: Paraneoplastic Syndromes**

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ONC-7.2: Small Cell Lung Cancer – Initial Work-up/Staging

Indication	Imaging Study
Initial staging	ANY or ALL of the following: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Brain without and with contrast (CPT® 70553) ◆ Bone scan, if PET/CT not being done (See also: **ONC-1.3: Nuclear Medicine (NM) Imaging** in Oncology)
Confirm limited stage (non-metastatic) disease if initial staging imaging (CT and MRI) shows disease limited to the thorax	◆ PET/CT (CPT® 78815)

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ONC-7.3: Small Cell Lung Cancer – Restaging/Recurrence

Indication	Imaging Study
Treatment Response: ◆ After every 2 cycles of chemotherapy ◆ Following completion of chemoradiation	ANY or ALL of the following: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Brain without and with contrast (CPT® 70553) for measurable brain metastases being treated with systemic therapy ◆ Bone scan (See also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**) ◆ PET is not indicated for evaluation of treatment response in SCLC, but can be considered on a case-by-case basis.
Restaging (suspected recurrence)	ANY or ALL of the following: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Brain without and with contrast (CPT® 70553) ◆ Bone scan (See: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**) ◆ PET is not indicated for evaluation of recurrent SCLC, but can be considered on a case-by-case basis.
Complete or partial response to initial treatment, if prophylactic cranial irradiation (PCI) is planned.	◆ MRI Brain without and with contrast (CPT® 70553)

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ONC-7.4: Small Cell Lung Cancer – Surveillance/Follow-up

Indication	Imaging Study
Limited stage SCLC	Every 3 months for one year, every 6 months for two years, and then annually: ◆ CT Chest without (CPT® 71250) or CT Chest with (CPT® 71260) contrast ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ For new nodules, see: **ONC-31.1: Lung Metastases**
Extensive stage SCLC	Every 2 months for one year, every 4 months for two years, every 6 months for two years, and then annually: ◆ CT Chest without (CPT® 71250) or CT Chest with (CPT® 71260) contrast ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ For new nodules, see: **ONC-31.1: Lung Metastases**
Screening for brain metastases, regardless of PCI status	◆ MRI Brain without and with contrast (CPT® 70553) every 4 months for 1 year and then every 6 months for 1 year

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ONC-8: Non-Small Cell Lung Cancer

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ONC-8.0: Non-Small Cell Lung Cancer – General Considerations

- Non-small cell lung cancer includes adenocarcinoma, squamous cell carcinoma, adenosquamous and large cell tumors.
- See: **ONC-15.6: Bronchopulmonary or Thymic Carcinoid – Initial Staging** for evaluation of low-grade neuroendocrine tumors (carcinoid) of the lung.
- See: **ONC-7: Small Cell Lung Cancer** for evaluation of high-grade small cell and large cell neuroendocrine tumors of the lung.
- PET/CT scan is generally not indicated for initial staging or restaging of NSCLC when multiple sites of extra-pulmonary metastases are found on conventional imaging (i.e., liver, bone and adrenal metastases, etc.).
- PET/CT may be considered to confirm solitary focus of extra-pulmonary metastatic disease (i.e., brain or adrenal) if the individual is being considered for an aggressive treatment for oligometastatic disease.

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ONC-8.1: Non-Small Cell Lung Cancer – Asymptomatic Screening

- See: **CH-33: Lung Cancer Screening** in the Chest Imaging Guidelines for criteria for Low-dose CT Chest for lung cancer screening.

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ONC-8.2: Non-Small Cell Lung Cancer – Suspected/Diagnosis

Indication	Imaging Study
Abnormal Chest X-ray or clinical suspicion remains high despite a normal Chest X-ray in symptomatic individual	◆ CT Chest without contrast (CPT® 71250) **or** ◆ CT Chest with contrast (CPT® 71260)
Pulmonary nodule <8 mm in size noted on CT Chest	◆ See: **CH-16.2: Incidental Pulmonary Nodules Detected on CT Images** in the Chest Imaging Guidelines
Pulmonary nodule 8 mm (0.8 cm) to 30 mm (3 cm) seen on CT Chest or MRI Chest	◆ PET/CT (CPT® 78815) ◆ See: **CH-16.4: PET** in the Chest Imaging Guidelines ◆ If PET is Positive: Qualifies as initial staging 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: ▪ Definitive treatment with resection or radiation will be utilized instead of biopsy if PET confirms limited disease ▪ 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** in the Chest Imaging Guidelines
Paraneoplastic syndrome suspected	See: **ONC-30.3: Paraneoplastic Syndromes**

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ONC-8.3: Non-Small Cell Lung Cancer – Initial Work-up/Staging

Indication	Imaging Study
All individuals	ANY or ALL of the following: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen with contrast (CPT® 74160) ■ 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 also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
ANY of the following: ◆ Stage I-IIIB ◆ Stage IV confined to the chest region (including pleural/pericardial effusion) ◆ Stage IV with oligometastatic disease on conventional imaging and individual is a candidate for aggressive surgical resection or other localized treatment of metastases with a curative intent ◆ Conventional imaging is inconclusive	◆ PET/CT (CPT® 78815) (if not already completed prior to histological diagnosis)
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)

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ONC-8.4: Non-Small Cell Lung Cancer – Restaging/Recurrence

Indication	Imaging Study
Stage I or II individuals who undergo definitive local treatment with surgery, radiation, or radiosurgery	◆ Restaging imaging is not indicated. See: **ONC-8.5: Surveillance/Follow-up**
Measurable disease, undergoing active treatment	ANY or ALL of the following every 2 cycles: ◆ CT Chest with (CPT® 71260) **or** CT Chest without contrast (CPT® 71250) ◆ CT Abdomen with contrast (CPT® 74160) ■ CT Abdomen and 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 (CPT® 71260) **or** CT Chest without contrast (CPT® 71250) ◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) may be substituted for known pelvic disease or pelvic symptoms
Newly identified lung nodule(s)	◆ See: **ONC-31.1: Lung Metastases** for new nodule evaluation

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Indication	Imaging Study
ANY of the following: ◆ Suspected/biopsy proven recurrence localized to the chest cavity ◆ Inconclusive findings conventional imaging ◆ To differentiate tumor from radiation scar/fibrosis ◆ Stage IV with oligometastatic disease on conventional imaging and individual is a candidate for aggressive surgical resection or other localized treatment of metastases with a curative intent	◆ PET/CT (CPT® 78815)
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)

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ONC-8.5: Non-Small Cell Lung Cancer – Surveillance/Follow-up

Indication	Study
Stage I-II	◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) every 6 months for 5 years and then annually ***Individuals treated with radiation therapy and residual abnormality on imaging may undergo CT Chest every 3 months for the first year after therapy, every 6 months for 4 years, and then annually thereafter
Stage III-IV (metastatic sites treated with definitive intent)	◆ CT Chest with contrast (CPT® 71260) **or** CT Chest without contrast (CPT® 71250) every 3 months for 2 years, every 6 months for 3 years and then annually
New lung nodule	◆ See: **ONC-31.1: Lung Metastases**

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ONC-9: Esophageal and GE Junction Cancer

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ONC-9.0: Esophageal and GE Junction Cancer – General Considerations

- Imaging for esophageal cancer is determined by cell type and in which third of the esophagus it occurs.
- 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).

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ONC-9.1: Esophageal and GE Junction Cancer – Suspected/Diagnosis

- See: **NECK-3.1: Dysphagia and Esophageal Disorders** in the Neck Imaging Guidelines for evaluation of suspected esophageal malignancy.

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ONC-9.2: Esophageal and GE Junction Cancer – Initial Work-up/Staging

Indication	Imaging Study
Biopsy proven	◆ CT Chest (CPT® 71260) and CT Abdomen (CPT® 74160) with contrast ■ CT Abdomen and 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)
If no evidence of metastatic disease on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-9.3: Esophageal and GE Junction Cancer – Restaging/Recurrence

Indication	Imaging Study
After primary chemoradiation therapy prior to surgery	◆ CT Chest (CPT® 71260) and CT Abdomen (CPT® 74160) with contrast
Post-surgical resection	◆ See: **ONC-9.4: Surveillance/Follow-up**
◆ If conventional imaging is inconclusive **or** ◆ Salvage surgical candidate with recurrence and no metastatic disease documented by conventional imaging	◆ PET/CT (CPT® 78815) ■ PET imaging can be done as early as 6 weeks after completion of radiation therapy if recent CT findings are inconclusive and PET findings will alter immediate care decision making
For ANY of the following: ◆ Signs or symptoms of recurrence ◆ Biopsy proven on follow-up endoscopy ◆ Recurrence suggested by other imaging (i.e. Chest X-ray or barium swallow)	◆ CT Chest (CPT® 71260) and CT 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)

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ONC-9.4: Esophageal and GE Junction Cancer – Surveillance/Follow-up

Indication	Imaging Study
Stage 0-IA (Tis, T1a) disease	◆ No routine advanced imaging indicated
Stage IB (T1b) disease	◆ CT Chest (CPT® 71260) and CT Abdomen (CPT® 74160) with contrast annually for 3 years
Stage II-III disease	◆ CT Chest (CPT® 71260) and CT Abdomen (CPT® 74160) with contrast every 6 months for 2 years and then annually for 3 more years
Stage IV disease	◆ See: **ONC-1.2: Phases of Oncology Imaging and General Phase-Related Considerations**

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ONC-10: Other Thoracic Tumors

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ONC-10.1: Malignant Pleural Mesothelioma – Suspected/Diagnosis

- See: **CH-9.1: Asbestos Exposure** in the Chest Imaging Guidelines for evaluation of suspected mesothelioma.

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ONC-10.2: Malignant Pleural Mesothelioma – Initial Work-up/Staging

Indication	Imaging Study
Cytologically or pathologically proven	◆ CT Chest (CPT® 71260) **and** CT Abdomen (CPT® 74160) with contrast ■ CT Abdomen and 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)

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ONC-10.3: Malignant Pleural Mesothelioma – Restaging

Indication	Imaging Study
Signs or symptoms of recurrence	◆ CT Chest (CPT® 71260) **and** CT Abdomen (CPT® 74160) with contrast ■ CT Abdomen and 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** CT Abdomen (CPT® 74160) with contrast ■ CT Abdomen and 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	◆ CT Chest (CPT® 71260) **and** CT Abdomen (CPT® 74160) with contrast ■ CT Abdomen and 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
Inconclusive CT Chest	◆ MRI Chest without and with contrast (CPT® 71552)

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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 thereafter

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ONC-10.5: Thymoma and Thymic Carcinoma – Suspected/Diagnosis

- See: **CH-20.1: Mediastinal Mass** in the Chest Imaging Guidelines for evaluation of suspected thymic malignancies.
- See: **ONC-15.6: Bronchopulmonary or Thymic Carcinoid – Initial Staging** for imaging guidelines for thymic carcinoid.

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ONC-10.6: Thymoma and Thymic Carcinoma – Initial Work-up/Staging

Indication	Imaging Study
Encapsulated or invasive limited disease	◆ CT Chest with contrast (CPT® 71260)
Extensive mediastinal involvement on CT Chest	◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Neck with contrast (CPT® 70491)
Inconclusive finding on CT	ONE of the following: ◆ 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**

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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 CT Chest	◆ 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: ◆ PET/CT (CPT® 78815) ◆ MRI Chest without and with contrast (CPT® 71552)
Metastatic disease on chemotherapy	◆ CT Neck (CPT® 70491), CT Chest (CPT® 71260), and CT 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

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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

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ONC-11.0: Breast Cancer – General Considerations

- Advanced imaging to evaluate for distant metastases is not indicated for pre-invasive or in-situ breast cancer (histologies such as DCIS and LCIS).
- Bone scan has a high concordance rate with PET for detecting bone metastases.
- Scintimammography and Breast Specific Gamma Imaging (BSGI) are considered experimental, investigational, or unproven.
- PET is not medically necessary for the following:
  - Non-invasive breast cancers
  - Prior to lymph node sampling in an individual with clinical stage I, II, or operable IIIA disease
  - Obvious multi-organ metastatic disease is present on CT or MRI

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ONC-11.1: Breast Cancer – Suspected/Diagnosis

- See: **BR-5: Breast MRI Indications** in the Breast Imaging Guidelines for evaluation of suspected breast cancer.

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ONC-11.2: Breast Cancer – Initial Work-up/Staging

Indication	Imaging Study
ANY of the following: ◆ Biopsy proven invasive breast cancer or carcinoma in-situ ◆ Adenocarcinoma in axillary lymph node	◆ MRI Breast Bilateral without and with contrast (CPT® 77049)
ANY of the following: ◆ Ductal carcinoma in situ ◆ Stage I and II	◆ For planned sentinel lymph node (SLN) biopsy: Lymph system imaging (lymphoscintigraphy, CPT® 78195)
Stages I, II, and III	◆ Routine systemic imaging is not indicated for initial staging of non-metastatic breast cancer in the absence of signs or symptoms
ANY of the following: ◆ Clinically suspected or biopsy proven metastatic/Stage IV disease ◆ Signs or symptoms of systemic disease ◆ Elevated liver function tests or tumor markers	ANY or ALL of the following: ◆ CT Chest (CPT® 71260) **and** CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ Bone scan See: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**
Inconclusive CT and/or bone scan	◆ PET/CT (CPT® 78815)
Bone pain	◆ Bone scan (see: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**) ◆ See: **ONC-31.5: Bone (including Vertebral) Metastases** ◆ See: **ONC-31.6: Spinal Cord Compression**

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ONC-11.3: Breast Cancer – Restaging/Recurrence

Indication	Imaging Study
ANY of the following: ◆ End of planned neoadjuvant chemotherapy to determine resectability ◆ Biopsy proven local recurrence ◆ Suspicion of recurrence with inconclusive mammogram and/or ultrasound (BIRADS 0) ◆ Mammogram and ultrasound conflicts with physical exam	◆ MRI Breast Bilateral without and with contrast (CPT® 77049)
ANY of the following: ◆ Assessing for residual disease after surgery ◆ Assessing response to neoadjuvant chemotherapy ◆ After lumpectomy or mastectomy, prior to adjuvant therapy	◆ Neither PET nor CT are indicated for systemic restaging after neoadjuvant chemotherapy or after surgery
◆ Treatment response in individuals with metastatic disease and measurable disease on imaging ▪ For individuals receiving chemotherapy, imaging is indicated after every 2 cycles ▪ For individuals receiving hormonal or endocrine therapy, imaging is indicated every 3 months	◆ CT Chest with contrast (CPT® 71260); **and** CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ Bone scan (see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology)** In addition to the above options, for individuals receiving systemic treatment for brain metastases: ◆ MRI Brain without and with contrast (CPT® 70553)
ANY of the following: ◆ Elevated LFTs ◆ Elevated tumor markers ◆ Signs or symptoms of recurrence ◆ Biopsy proven recurrence	Any or all of the following: ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ Bone scan (See also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**)
Inconclusive CT, MRI, and/or bone scan for suspected recurrence, and further characterization is needed to make treatment decisions	◆ PET/CT (CPT® 78815)
Bone metastasis as the only site of stage IV disease (excluding brain metastases) and a prior bone scan has not been performed for serial comparison	◆ PET/CT (CPT® 78815)

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ONC-11.4: Breast Cancer – Surveillance/Follow-up

Indication	Imaging Study
Measurable metastatic disease on maintenance therapy or being monitored off therapy	ANY or ALL of the following, every 3 months for up to 5 years after completion of active treatment: ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ Bone scan (see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**)
◆ Asymptomatic non-metastatic disease ◆ Individuals receiving post-operative adjuvant therapy	◆ No advanced imaging indicated
Breast surveillance in an individual with prior history of breast cancer (not treated with bilateral mastectomy) AND any one of the following: ◆ Age at diagnosis <50 years ◆ Clinical lifetime risk estimated to be ≥20% using genetic or clinical risk estimator, calculated prior to the initial diagnosis of breast cancer ◆ Extremely dense breast tissue (breast density category D) on mammography	◆ Bilateral MRI Breast without and with contrast (CPT® 77049) annually ◆ See also: **BR-5: Breast MRI Indications** for information on state-specific mandates
◆ Individuals treated with bilateral mastectomy ◆ All other individuals with no high risk features (as stated above)	◆ Breast MRI is not indicated for routine surveillance of asymptomatic individuals

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ONC-12: Sarcomas – Bone, Soft Tissue and GIST

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ONC-12.1: Bone and Soft Tissue Sarcomas – General Considerations

- Sarcomas are tumors of mesenchymal origin, classified as high-, intermediate-, and low-grade (G) 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 individuals, but some are more common in one age group than the other. Unless specified below, individuals age ≥18 years old should be imaged according to this guideline section.
- Exceptions include:
  - Rhabdomyosarcoma individuals of all ages should be imaged according to guidelines in **PEDONC-8.2: Rhabdomyosarcoma (RMS)** in the Pediatric Oncology Imaging Guidelines
  - Osteogenic sarcoma (Osteosarcoma) individuals of all ages should be imaged according to guidelines in **PEDONC-9.3: Osteogenic Sarcoma (OS)** in the Pediatric Oncology Imaging Guidelines
  - Ewing sarcoma and Primitive Neuroectodermal Tumor individuals of all ages should be imaged according to guidelines in **PEDONC-9.4: Ewing Sarcoma and Primitive Neuroectodermal Tumors (ESFT)** in the Pediatric Oncology Imaging Guidelines
  - Kaposi's sarcoma individuals of all ages should be imaged according to guidelines in **ONC-31.10: Kaposi's Sarcoma**
  - See: **ONC-22: Uterine Cancer** for imaging recommendations for uterine sarcoma

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ONC-12.2: Soft Tissue Sarcomas – Initial Work-up/Staging

Indication	Imaging Study
Retroperitoneal or intraabdominal primary site	ANY or ALL of the following: ◆ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast ◆ Either CT Abdomen and Pelvis with contrast (CPT® 74177) **or** MRI Abdomen (CPT® 74183) **and** MRI Pelvis (CPT® 72197) without and with contrast
ANY of the following: ◆ Extremity or trunk primary site ◆ Head or neck primary site	ANY or ALL of the following: ◆ MRI without and with contrast of involved area ◆ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast
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 (CPT® 71250) contrast ◆ Either CT Abdomen and Pelvis with contrast (CPT® 74177) **or** MRI Abdomen (CPT® 74183) **and** MRI 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 and 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, CPT® 72157, and CPT® 72158)
ANY of the following: ◆ Angiosarcoma ◆ Alveolar soft part sarcoma ◆ All individuals 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	◆ PET/CT (CPT® 78815 or CPT® 78816)

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Indication	Imaging Study
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 (CPT® 71250) contrast for: ▪ Pulmonary symptoms ▪ Abnormal Chest X-ray ▪ Sarcomatous differentiation

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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 or CT with contrast of affected body area ◆ 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 CPT® 78816)
Chemotherapy response for individuals 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 (CPT® 71250) contrast for: ▪ Pulmonary symptoms ▪ Abnormal Chest X-ray ▪ Sarcomatous differentiation

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ONC-12.4: Soft Tissue Sarcomas Surveillance/Follow-up

Indication	Imaging Study
Retroperitoneal/intra-abdominal 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 (CPT® 71250) contrast ◆ CT Abdomen and 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 5 years, then annually thereafter: ◆ Chest x-ray ■ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast is indicated for new findings on Chest X-ray 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 (CPT® 71250) contrast ◆ 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 Protuberans	◆ No routine imaging unless clinical signs/symptoms of recurrence

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ONC-12.5: Gastrointestinal Stromal Tumor (GIST)

General Considerations

- 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.

Indication	Imaging Study
Suspected/Diagnosis	◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Initial Work-up/Staging	◆ CT Chest (CPT® 71260) and CT Abdomen and 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 (CPT® 78815) is indicated for evaluation of inconclusive findings on conventional imaging
Restaging/Recurrence	◆ CT Abdomen and 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 (CPT® 78815) is indicated for evaluation of inconclusive findings on conventional imaging
Treatment Response	◆ CT Abdomen and 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 (CPT® 78815) is indicated for evaluation of inconclusive findings on conventional imaging
Surveillance/Follow-up	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) every 6 months for 5 years, then annually

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ONC-12.6: Bone Sarcomas – Initial Work-up/Staging

Indication	Imaging Study
Chondrosarcoma ◆ Low grade intracompartmental ◆ High grade (grade II or grade III) ◆ Clear cell ◆ Extracompartmental	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 (CPT® 71250) contrast
Dedifferentiated chondrosarcoma	See: **PEDONC-9.3: Osteogenic Sarcoma (OS)** for imaging recommendations
Mesenchymal chondrosarcoma	See: **PEDONC-9.4: Ewing's Sarcoma Family of Tumors** for imaging recommendations
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 (CPT® 71250) contrast ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), and Lumbar (CPT® 72158) Spine without and with contrast ◆ Bone scan (see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**) ◆ PET may be approved for inconclusive conventional imaging

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ONC-12.7: Bone Sarcomas – Restaging/Recurrence

Indication	Imaging Study
Chondrosarcoma ◆ Low grade intracompartmental ◆ High grade (grade II or grade III) ◆ Clear cell Extracompartmental	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 (CPT® 71250) contrast
Dedifferentiated chondrosarcoma	See: **PEDONC-9.3: Osteogenic Sarcoma (OS)** for imaging recommendations
Mesenchymal chondrosarcoma	See: **PEDONC-9.4: Ewing's Sarcoma Family of Tumors** for imaging recommendations
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 also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**) ◆ PET may be approved for inconclusive conventional imaging

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ONC-12.8: Bone Sarcomas – Surveillance/Follow-up

Indication	Imaging Study
◆ Grade I Chondrosarcoma ◆ Intracompartmental Chondrosarcoma	ANY or ALL of the following every 6 months for 2 years, then annually for 10 years: ◆ Plain x-ray of primary site ■ MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms. ◆ Chest x-ray ■ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast for new findings on chest x-ray, or new/worsening signs/symptoms
◆ Grade II or III Chondrosarcoma ◆ Clear Cell Chondrosarcoma ◆ Extracompartmental Chondrosarcoma	ANY or ALL of the following every 6 months for 5 years, then annually for 10 years: ◆ Plain x-ray of primary site ■ MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms. ◆ Chest x-ray or CT Chest with (CPT® 71260) **or** CT Chest without (CPT® 71250) contrast
Dedifferentiated chondrosarcoma	See: **PEDONC-9.3: Osteogenic Sarcoma (OS)** for imaging recommendations
Mesenchymal chondrosarcoma	See: **PEDONC-9.4: Ewing's Sarcoma Family of Tumors** for imaging recommendations
Chordoma	◆ Plain x-ray of primary site every 6 months for 5 years and then annually until year 10 ■ MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms. ◆ Chest x-ray every 6 months for 5 years and then annually until year 10 ■ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast may be obtained annually or for evaluation of any new findings on chest x-ray or new/worsening signs/symptoms

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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 individuals.
- 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/CT in the evaluation of benign bone tumors, and PET requests should not be approved without biopsy confirmation of a malignancy.
- Other benign bone tumor individuals of all ages should be imaged according to guidelines in **PEDONC-9.2: Benign Bone Tumors** in the Pediatric Oncology Imaging Guidelines.

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ONC-12.10: Benign Bone Tumors – Initial Work-up/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 (CPT® 71250) contrast ◆ Bone scan (see also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**)
Enchondroma	◆ MRI without contrast or without and with contrast of primary site

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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 also: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**)
Enchondroma	Generally no indication for this benign tumor unless symptoms

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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 4 years, then annually thereafter: ◆ Plain x-ray of primary site ■ MRI without and with contrast is indicated for new findings on plain x-ray or new/worsening clinical symptoms. ◆ Chest x-ray ■ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast for new findings on chest x-ray, or new/worsening signs/symptoms.
Enchondroma	Plain films of primary site

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ONC-13: Pancreatic Cancer

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ONC-13.0: Pancreatic Cancer – General Considerations

- This guideline refers only to adenocarcinoma of the exocrine pancreas, which accounts for over 90% of pancreatic malignancies. This guideline may also be used for cancer of the Ampulla of Vater.
- Neuroendocrine and carcinoid tumors of the pancreas are not included in this guideline, see: **ONC-15: Neuroendocrine Cancers and Adrenal Tumors.**

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ONC-13.1: Pancreatic Cancer – Screening Studies for Pancreatic Cancer

- Detailed history of any known inherited syndrome in the individual and detailed family history in first and second degree relatives, including the age and lineage, is essential to guide screening recommendations. See table below for age- and risk-specific screening recommendations
- New onset of diabetes in individuals older than 50 has been recognized as a potential indicator of the development of pancreatic cancer. Approximately 1% of individuals in this category are diagnosed with cancer within 3 years. A prediction model has been established which identifies those individuals at greatest risk for pancreatic malignancy. The scoring system, known as ENDPAC (Enriching New-Onset Diabetes for Pancreatic Cancer) is based on 3 discriminatory factors, including change in blood glucose, change in weight, and age of onset at the time of the new diagnosis of diabetes. A score of >3 imparts an elevated risk of pancreatic cancer (3.6%), and these individuals should be screened. Screening is not indicated at this time for scores of 0-2.

Indications	Imaging Study
Individuals who meet **BOTH** of the following criteria: ◆ One or more first- or second-degree relative affected with pancreatic adenocarcinoma **AND** ◆ Known mutation carrier of ONE of the following genes: ▪ Lynch Syndrome (MLH1, MSH2, or MSH6 gene mutations) ▪ BRCA1, BRCA2 (Familial Breast and Ovarian syndrome) ▪ PALB2 mutation ▪ ATM (Ataxia-Telangiectasia)	◆ MRI Abdomen without and with contrast (CPT® 74183) starting at age 50 or 10 years earlier than the youngest affected family member, repeat annually
Individuals with family history of pancreatic cancer, but no known genetic mutation: ◆ Individuals with 2 relatives with pancreatic adenocarcinoma where one is a first-degree relative ◆ Individuals with 3 or more relatives with pancreatic adenocarcinoma	◆ MRI Abdomen without and with contrast (CPT® 74183) starting at age 45 or 10 years earlier than the youngest affected family member, repeat annually
Pancreatic Cancer Kindred (individuals who have at least one first-degree relative with pancreatic adenocarcinoma who in turn also has a first-degree relative with pancreatic adenocarcinoma) and NO known genetic germline mutations	◆ MRI Abdomen without and with contrast (CPT® 74183) starting at age 50 or 10 years earlier than the youngest affected family member, repeat annually

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Indications	Imaging Study
Hereditary Pancreatitis (PRSS1, CPA1, and CTRC gene mutations)	◆ MRI Abdomen without and with contrast (CPT® 74183) beginning at age 40 or 20 years after the first pancreatitis attack, repeat annually.
Peutz-Jeghers Syndrome (LKB1/STK11 gene mutation)	◆ MRI Abdomen without and with contrast (CPT® 74183) starting at age 30, repeat annually
CDKN2A mutation (also known as p16, p16INK4a, and MTS1, FAMM-Familial Atypical Multiple Melanoma and Mole Syndrome)	◆ MRI Abdomen without and with contrast or MRCP (CPT® 74183) beginning at age 40, repeat annually.
Screening MRI reveals cystic lesion of the pancreas	◆ Repeat MRI Abdomen without and with contrast (CPT® 74183) in 6 months
Screening MRI reveals indeterminate solid lesion	◆ CT Abdomen with contrast – pancreatic protocol (CPT® 74160) ◆ May repeat MRI Abdomen without and with contrast (CPT® 74183) in 3 months after the CT scan
Screening MRI reveals pancreatic stricture and/or dilation ≥6 mm without a mass	◆ CT Abdomen with contrast – pancreatic protocol (CPT® 74160) ◆ May repeat MRI Abdomen without and with contrast (CPT® 74183) in 3 months after the CT scan
New onset diabetes in adults with ENDPAC score of ≥3	◆ CT Abdomen without and with contrast (CPT® 74170) **or** MRI Abdomen without and with contrast (CPT® 74183) at baseline; if negative, can be repeated once after 6 months

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ONC-13.2: Pancreatic Cancer – Suspected/Diagnosis

Indication	Imaging Study
For any suspected symptoms only (e.g. epigastric pain, weight loss, pain radiating to back, etc.)	◆ Ultrasound (CPT® 76700 or CPT® 76705) ◆ Also see: **AB-2.5: Epigastric Pain and Dyspepsia**
Symptoms suspicious for pancreatic cancer AND any one of the following: ◆ Abnormal labs (e.g. elevated CA 19-9, ALKP, bilirubin, or GGTP) ◆ Abnormal physical exam findings (e.g. abdominal mass) ◆ Abnormal or non-diagnostic ultrasound/ERCP ◆ Any red flag signs (see: **AB-2.1**)	Any ONE of the following: ◆ CT Pancreatic Protocol (CT Abdomen with contrast with dual phase imaging, CPT® 74160) ◆ MRI Abdomen without and with contrast (CPT® 74183)
Preoperative studies for potentially resectable tumors without confirmed histologic diagnosis	◆ See: **ONC-13.3: Pancreatic Cancer – Initial Work-up/Staging**

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ONC-13.3: Pancreatic Cancer – Initial Work-up/Staging

Indication	Imaging Study
All individuals	◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with (CPT® 74177) or CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ EUS
For any of the following: ◆ Preoperative planning ◆ CT insufficient to determine resectability ◆ Evaluation of indeterminate liver lesions	◆ MRI Abdomen without and with contrast (CPT® 74183)
No evidence of metastatic disease on CT or MRI AND any of the following high-risk features: ◆ Borderline resectable disease ◆ Markedly elevated CA 19-9 ◆ Large primary tumor(s) ◆ Enlarged regional lymph nodes	◆ PET/CT (CPT® 78815)

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ONC-13.4: Pancreatic Cancer – Restaging/Recurrence

Indication	Imaging Study
For ANY of the following: ◆ After neoadjuvant chemoradiation ◆ Post-operative baseline ◆ Suspected recurrence	◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with (CPT® 74177) or CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ CT with contrast of other involved or symptomatic areas
Unresectable disease or metastatic disease on chemotherapy	Every 2 cycles of treatment (commonly every 6 to 8 weeks): ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with (CPT® 74177) or CT Abdomen and Pelvis 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: Pancreatic Cancer – Surveillance/Follow-up** for surveillance imaging

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ONC-13.5: Pancreatic Cancer – Surveillance/Follow-up

Indication	Imaging Study
All individuals	Every 3 months for 2 years, then annually: ◆ CT Chest with contrast (CPT® 71260) And ANY ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Abdomen without and with contrast (CPT® 74183) and MRI Pelvis without and with contrast (CPT® 72197)
Measurable metastatic disease on maintenance therapy or being monitored off therapy	Every 3 months for up to 5 years after completion of definitive treatment: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)

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ONC-14: Upper GI Cancers

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ONC-14.1: Hepatocellular Carcinoma (HCC) – General Considerations

- A biopsy is not always required for the diagnosis of Hepatocellular carcinoma (HCC). A dedicated triple-phase CT or MRI may be obtained. MRI with contrast is the test of choice for the evaluation of liver masses. It offers soft tissue contrast resolution superior to CT as well as the possibility of using two different contrast agents, one of which if more blood flow based and the other which also is blood flow based and demonstrates hepatobiliary function (Eovist). Classical imaging findings include:
  - Arterial phase hyperenhancement
  - Venous phase washout appearance
  - Capsule appearance
  - Threshold growth
- For individuals who are high risk for developing HCC (cirrhosis, chronic Hepatitis B or current or prior HCC), if the liver lesion is >1 cm with 2 classic enhancements on triple-phase CT or MRI, the diagnosis is confirmatory and biopsy is not needed.
- For lesions less than 1 cm or with less than 2 classical enhancements or for any liver lesions in individuals who are not high risk, a biopsy is needed for histological confirmation.
- PET/CT scan is considered experimental, investigational, or unproven for the diagnosis or staging of HCC

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ONC-14.2: Hepatocellular Carcinoma (HCC) – Suspected/Diagnosis

- See: **AB-26.1: Chronic Liver Disease, Cirrhosis and Screening for HCC** in the Abdomen Imaging Guidelines
- See: **AB-29.1: Liver Lesion Characterization** in the Abdomen Imaging Guidelines

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ONC-14.3: Hepatocellular Carcinoma (HCC) – Initial Work-up/Staging

Indication	Imaging Study
All individuals	◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) And ONE of the following: ◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast

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ONC-14.4: Hepatocellular Carcinoma (HCC) – Restaging/Recurrence

Indication	Imaging Study
ONE of the following: ◆ After initial therapy ◆ For suspected recurrence or new liver lesions ◆ Individuals receiving systemic therapy (every 2 cycles)	◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) ONE of the following: ◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Hepatocellular Carcinoma treated with embolization	◆ CTA Abdomen (CPT® 74175) can be approved immediately prior to embolization ONE of the following, immediately prior to and 1 month post-ablation: ◆ MRI Abdomen without and with contrast (CPT® 74183) ◆ CT Abdomen without and with contrast (CPT® 74170) See: **ONC-31.2: Liver Metastases** for imaging studies indicated prior to and post-embolization
Hepatocellular Carcinoma awaiting liver transplant	◆ See: **AB-42.1: Liver Transplant, Pre-Transplant** in the Abdomen Imaging Guidelines

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ONC-14.5: Hepatocellular Carcinoma (HCC) – Surveillance/Follow-up

Indication	Imaging Study
Hepatocellular Carcinoma: ◆ Treated with surgical resection ◆ Treated with embolization ◆ Being monitored off therapy	Every 3 months for 2 years, then annually: ◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) And ONE of the following: ◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast
Hepatocellular Carcinoma treated with liver transplant	◆ See: **AB-42.3: Liver Transplant, Post-transplant Imaging** in the Abdomen Imaging Guidelines

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ONC-14.6: Gallbladder and Biliary Tumors – Initial Work-up/Staging

Indication	Imaging Study
All individuals	◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) And ONE of the following: ◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-14.7: Gallbladder and Biliary Tumors – Restaging/Recurrence

Indication	Imaging Study
ANY of the following: ◆ After initial therapy ◆ For suspected recurrence or new liver lesions ◆ Individuals receiving systemic chemotherapy (every 2 cycles)	◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) And ONE of the following: ◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-14.8: Gallbladder and Biliary Tumors – Surveillance/Follow-up

Indication	Imaging Study
All individuals	Every 6 months for 2 years, and then annually up to year 5: ◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) And ONE of the following: ◆ CT Abdomen with contrast (CPT® 74160) ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Biliary carcinoma treated with liver transplant	See: **AB-42.3: Liver Transplant, Post-transplant Imaging** in the Abdomen Imaging Guidelines

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ONC-14.9: Gastric Cancer – Initial Work-up/Staging

Indication	Imaging Study
All individuals	◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Gastric cancer ≥T2 or higher with no metastatic disease by conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-14.10: Gastric Cancer – Restaging/Recurrence

Indication	Imaging Study
◆ After initial therapy for presumed surgically resectable disease ◆ Post curative chemoradiation being treated without surgery ◆ For suspected recurrence	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177)
Monitoring response to chemotherapy (every 2 cycles, ~every 6-8 weeks) for: ◆ Unresected primary disease ◆ Metastatic disease	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Chest with contrast (CPT® 71260) for: ■ New/worsening pulmonary symptoms ■ Abnormal chest x-ray findings ■ Known prior pulmonary involvement
New liver lesion(s) and primary site controlled	◆ CT Abdomen without and with contrast (CPT® 74170) **or** MRI Abdomen without and with contrast (CPT® 74183)
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-14.11: Gastric Cancer – Surveillance/Follow-up

Indication	Imaging Study
Stage I (treated with resection alone)	◆ No routine imaging unless clinical signs/symptoms of recurrence
ANY of the following: ◆ Stage I treated with systemic therapy ◆ Stages II-III ◆ Stage IV - Metastatic disease (post definitive treatment of all measurable disease or being observed off therapy)	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177) annually for 5 years
Measurable metastatic disease on maintenance therapy or being monitored off therapy	Every 3 months for up to 5 years after completion of active treatment: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)

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ONC-15: Neuroendocrine Cancers and Adrenal Tumors

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Oncology Imaging Guidelines

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ONC-15.1: General Considerations

This guideline includes low-grade or well-differentiated carcinoid and endocrine tumors of the lung, thymus, pancreas, gastrointestinal tract or unknown primary site; including insulinoma, glucagonoma, VIPoma, gastrinoma, somatostatinoma and others as well as catecholamine-secreting tumors of the adrenal gland such as pheochromocytoma, paraganglioma, adrenocortical carcinoma, and others.

- For poorly-differentiated or high-grade small cell or large cell neuroendocrine tumors arising outside the lung or from an unknown primary site, see: **ONC-31.8: Extrathoracic Small Cell and Large Cell Neuroendocrine Tumors**.
- For poorly-differentiated or high grade neuroendocrine tumors of the lung, see: **ONC-7: Small Cell Lung Cancer.**
- Neuroblastoma, ganglioneuroblastoma, and ganglioneuroma occurring in adults should be imaged according to **PEDONC-6: Neuroblastoma** in the Pediatric Oncology Imaging Guidelines.
- Many are associated with Multiple Endocrine Neoplasia (MEN) familial syndromes. – See: **PEDONC-2.8: Multiple Endocrine Neoplasias (MEN)** in the Pediatric Oncology Imaging Guidelines for screening recommendations.
- Somatostatin receptor (SSR) based imaging is more sensitive and specific for evaluation of well-differentiated neuroendocrine tumors and may be performed using ^{111}In DTPA Octreotide scintigraphy or PET/CT scan with SSR radiotracers (such as ^{68}Ga–DOTATATE, ^{68}Ga-DOTATOC, or ^{64}Cu-DOTATATE). This study is not part of evaluation of poorly-differentiated or high grade neuroendocrine tumors, which are imaged according to: **ONC-31.8: Extrathoracic Small Cell and Large Cell Neuroendocrine Tumors**.

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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: ■ Chromogranin A ■ 5HIAA ■ Insulin ■ VIP ■ Glucagon ■ Gastrin ■ Substance P ■ Serotonin ■ Somatostatin	ANY or ALL of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or without and with contrast (CPT® 74178) ■ If CT inconclusive, MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast is indicated ◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) ◆ CT with contrast or MRI without and with contrast of any other symptomatic body areas
◆ Continued suspicion with negative/inconclusive CT or MRI	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE

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ONC-15.3: Gastrointestinal/Pancreatic Neuroendocrine Cancers – Initial Work-up/Staging

Indication	Imaging Study
Carcinoid, pancreatic neuroendocrine tumors	If not already done: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or without and with contrast (CPT® 74178) ■ If CT inconclusive, MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast is indicated ◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250)
Inconclusive CT or MRI scans	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE
ANY of the following: ◆ Markers fail to normalize after complete resection AND CT/MRI and somatostatin-receptor based study are negative ◆ Biopsy-proven neuroendocrine tumor of unknown primary site AND CT/MRI and somatostatin-receptor based study are negative	◆ FDG-PET/CT scan (CPT® 78815)

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ONC-15.4: Gastrointestinal/Pancreatic Neuroendocrine Cancers – Restaging/Recurrence

Indication	Imaging Study
All after surgical resection	◆ See: **ONC-15.5: Gastrointestinal/Pancreatic Neuroendocrine Cancers - Surveillance**
Unresectable/metastatic disease on treatment with somatostatin analogues	◆ CT of involved body area no more frequently than every 3 months
Unresectable/metastatic disease on treatment with chemotherapy	◆ CT of involved body area every 2 cycles (6 to 8 weeks)
Progression of symptoms or elevation of tumor markers	◆ CT Chest without contrast (CPT® 71250) or CT Chest with contrast (CPT® 71260) And ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Continued suspicion for recurrence with negative or inconclusive CT or MRI	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE
To assess candidacy for peptide receptor radionuclide therapy (PRRT) with Lutetium ^{177}Lu-dotatate	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE

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ONC-15.5: Gastrointestinal/Pancreatic Neuroendocrine Cancers – Surveillance

Indication	Imaging Study
ANY of the following: ◆ Appendix carcinoid ≤2 cm, completely resected ◆ Rectal carcinoid <1 cm, completely resected	◆ Advanced imaging is not routinely indicated for surveillance
Rectal carcinoid 1-2 cm, completely resected	◆ MRI Pelvis without and with contrast (CPT® 72197) once at 12 months post resection. If clear, no further surveillance imaging indicated
All other neuroendocrine tumors of the bowel (small/large)	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) once at 3 to 12 months postoperatively and annually for 3 years and then every 2 years up to year 10
Neuroendocrine tumors of the upper abdomen (i.e., pancreas, stomach)	◆ CT Abdomen with contrast (CPT® 74160) once at 3 to 12 months postoperatively then annually for 3 years and then every 2 years up to year 10
Unresected primary tumors being monitored with observation alone	◆ CT Abdomen with contrast (CPT® 74160) once at 3 to 12 months from initial diagnosis then annually for 3 years and then every 2 years up to year 10
Measurable metastatic disease on maintenance treatment or off therapy	◆ CT of involved body area no more frequently than every 3 months

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ONC-15.6: Bronchopulmonary or Thymic Carcinoid – Initial Staging

Indication	Imaging Study
Initial diagnosis	If not already done: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen with contrast (CPT® 74160) or without and with contrast (CPT® 74170) ■ If CT inconclusive, MRI Abdomen (CPT® 74183) without and with contrast is indicated
Inconclusive CT or MRI scans	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE
ANY of the following: ◆ Markers fail to normalize after complete resection AND CT/MRI and somatostatin-receptor based study are negative ◆ Biopsy-proven neuroendocrine tumor of unknown primary site AND CT/MRI and somatostatin-receptor based study are negative	◆ FDG-PET/CT scan (CPT® 78815)

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ONC-15.7: Bronchopulmonary or Thymic Carcinoid – Restaging/Recurrence

Indication	Imaging Study
All after surgical resection	◆ See: **ONC-15.8: Bronchopulmonary or Thymic Carcinoid - Surveillance**
Unresectable/metastatic disease on treatment with somatostatin analogues	◆ CT of involved body area no more frequently than every 3 months
Unresectable/metastatic disease on treatment with chemotherapy	◆ CT of involved body area every 2 cycles (6 to 8 weeks)
Progression of symptoms or elevation of tumor markers	◆ CT Chest without (CPT® 71250) or CT Chest with contrast (CPT® 71260) And ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast
Continued suspicion for recurrence with negative or inconclusive CT or MRI	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE

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ONC-15.8: Bronchopulmonary or Thymic Carcinoid – Surveillance

Indication	Imaging Study
Carcinoid tumors of lung or thymus	◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) once at 3 to 12 months post resection and then annually for 3 years and then every 2 years up to year 10
Unresected primary tumors being monitored with observation alone	◆ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) once at 3 to 12 months from initial diagnosis then annually for 3 years and then every 2 years up to year 10
Measurable metastatic disease on maintenance treatment or off therapy	◆ CT of involved body area no more frequently than every 3 months

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ONC-15.9: Adrenal Tumors – Suspected/Diagnosis

- See: **AB-16.1: Adrenal Cortical Lesions** in the Abdomen Imaging Guidelines for evaluation of suspected adrenal malignancies.
- If concern for genetic predisposition syndrome such as MEN, neurofibromatosis, or Von Hippel-Lindau disease, see screening recommendations in **PEDONC-2: Screening Imaging and Cancer Predisposition Syndromes** in the Pediatric Oncology Imaging Guidelines.

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ONC-15.10: Adrenal Tumors – Initial Work-up/Staging

Indication	Imaging Study
For ANY of the following: ◆ Pheochromocytoma ◆ Paraganglioma ◆ Paraganglioneuroma	If not already done: ◆ CT Chest without (CPT® 71250) or CT Chest with contrast (CPT® 71260) And ONE of the following (if not already done): ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast ◆ CT with contrast or MRI without and with contrast of any other symptomatic body areas
Continued suspicion with negative/inconclusive CT or MRI	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE
All above studies done and negative/inconclusive	◆ FDG-PET/CT scan (CPT® 78815)

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ONC-15.11: Adrenal Tumors – Restaging/Recurrence

Indication	Imaging Study
If surgery is primary therapy	◆ CT Abdomen with contrast (CPT® 74160) one time within first year post resection then go to surveillance recommendations
Recurrence, progression of symptoms, or elevation of tumor markers	◆ CT Chest without contrast (CPT® 71250) or CT Chest with contrast (CPT® 71260) And ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Continued suspicion for recurrence with negative or inconclusive CT or MRI	ONE of the following: ◆ Octreotide scan (ANY ONE of the following): ■ CPT® 78802 (single day study - with add on CPT® 78803 or CPT® 78830) ■ CPT® 78804 (two day study - with add on CPT® 78831 or CPT® 78832) ◆ PET/CT scan (CPT® 78815) with any ONE of the following SSR radiotracers: ■ ^{68}Ga-DOTATATE ■ ^{68}Ga-DOTATOC ■ ^{64}Cu-DOTATATE
All above studies done and negative/ inconclusive	◆ FDG-PET/CT scan (CPT® 78815)

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ONC-15.12: Adrenal Tumors – Surveillance

Indication	Imaging Study
All individuals	◆ CT Abdomen with contrast (CPT® 74160) and CT of other involved body areas with contrast annually for 10 years
Measurable metastatic disease being observed off therapy or on maintenance treatment	◆ CT of involved body area no more frequently than every 3 months

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ONC-15.13: Adrenocortical Carcinoma

Indication	Imaging Study
Initial Staging	◆ CT Chest without (CPT® 71250) or CT Chest with contrast (CPT® 71260) And ONE of the following (if not already done): ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Suspected recurrence	◆ CT Chest without (CPT® 71250) or CT Chest with contrast (CPT® 71260) And ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen and Pelvis without and with contrast (CPT® 74178) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Surveillance after complete response to definitive treatment	◆ CT Abdomen with contrast (CPT® 74160) and CT of other involved body areas with contrast annually for 5 years
Measurable metastatic disease on maintenance therapy or being monitored off therapy	Every 3 months: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of other involved body areas

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ONC-16: Colorectal and Small Bowel Cancer

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ONC-16.0: Colorectal Cancer – General Considerations

- Neuroendocrine tumors of the bowel are covered in: **ONC-15: Neuroendocrine Cancers and Adrenal Tumors.**
- Appendiceal adenocarcinoma (including pseudomyxoma peritonei) follows imaging guidelines for colorectal cancer.
- For squamous cell carcinoma of the rectum, see: **ONC-24: Anal Carcinoma.**

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ONC-16.1: Colorectal Cancer – Suspected/Diagnosis

- See: **AB-22: GI Bleeding** or **AB-25.1: CT Colonography (CTC)** in the Abdomen Imaging Guidelines for evaluation of suspected colorectal malignancies.
- See: **AB-13.3: Abnormal Findings on Endoscopy/Colonoscopy** in the Abdomen Imaging Guidelines for evaluation of abnormal findings on endoscopy/colonoscopy.

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ONC-16.2: Colorectal Cancer – Initial Work-up/Staging

Indication	Imaging Study
Carcinoma within a polyp that is completely removed	◆ No advanced imaging needed
Invasive adenocarcinoma	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177)
◆ Further evaluation of an inconclusive liver lesion seen on CT ◆ Potentially resectable liver metastases	◆ MRI Abdomen without and with contrast (CPT® 74183)
Rectal adenocarcinoma	◆ MRI Pelvis without and with contrast (CPT® 72197) or MRI Pelvis without contrast (CPT® 72195)
Rectal adenocarcinoma with ANY one of the following: ◆ Rectal MRI is contraindicated ◆ Rectal MRI is inconclusive ◆ Superficial lesions	◆ Endorectal ultrasound (CPT® 76872)
ONE of the following: ◆ Isolated metastatic lesion(s) on other imaging and individual is a candidate for aggressive surgical resection or other localized treatment to metastasis for curative intent ◆ Inconclusive conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-16.3: Colorectal Cancer – Restaging/Recurrence

Indication	Imaging Study
◆ Complete resection ◆ Individuals receiving post-operative adjuvant chemotherapy	◆ See: **ONC-16.4: Surveillance/Follow-up**
Recurrence suspected	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
After completion of planned neoadjuvant therapy	Prior to surgical resection in individuals with non-metastatic rectal cancer: ◆ CT Chest with contrast (CPT® 71260) and Any ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen with contrast (CPT® 74160) and MRI Pelvis without and with contrast (CPT® 72197)
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 and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of other involved or symptomatic areas
◆ Further evaluation of an inconclusive liver lesion seen on CT ◆ Potentially resectable liver metastases	◆ MRI Abdomen without and with contrast (CPT® 74183)
ONE of the following: ◆ Postoperative elevated or rising CEA or LFTs with negative recent conventional imaging ◆ Isolated metastatic lesion(s) on other imaging and individual is a candidate for aggressive surgical resection or other localized treatment to metastasis for curative intent ◆ Differentiate local tumor recurrence from postoperative and/or post-radiation scarring	◆ PET/CT (CPT® 78815)
New or worsening pelvic pain and recent CT imaging negative or inconclusive	◆ MRI Pelvis without and with contrast (CPT® 72197)

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ONC-16.4: Colorectal Cancer – Surveillance/Follow-up

Indication	Imaging/Lab Study
Colon and rectal adenocarcinoma: ◆ Stage I	◆ No routine advanced imaging indicated
Colon and rectal adenocarcinoma: ◆ Stage II-III	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177) after completion of surgery and then annually for 5 years
Colon and rectal adenocarcinoma: ◆ Stage IV or distant metastatic disease (post definitive treatment of all measurable disease or being observed off therapy)	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177) every 6 months for 2 years and then annually for 3 years
Rectal cancer treated with transanal excision alone	◆ Endorectal ultrasound (CPT® 76872) every 6 months for 5 years ◆ MRI Pelvis without and with contrast (CPT® 72197) may be obtained for: ■ Abnormal findings on ultrasound ■ Endorectal ultrasound is not feasible ■ New signs/symptoms concerning for local recurrence
Stage II-III rectal cancer treated with chemoradiation alone (no surgical treatment)	In addition to the above stage-specific surveillance: ◆ MRI Pelvis (CPT® 72197) without and with contrast every 6 months for 2 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 CT Chest without contrast (CPT® 71250) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast

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ONC-16.5: Small Bowel Cancer – Initial Work-up/Staging

This section provides imaging guidelines for small bowel adenocarcinoma arising from the duodenum, jejunum, and ileum.

Indication	Imaging/Lab Study
Carcinoma within a polyp that is completely removed	◆ No advanced imaging needed
Invasive adenocarcinoma	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ■ MRI Abdomen without and with contrast (CPT® 74183) and MRI Pelvis without and with contrast (CPT® 72197) if CT is inconclusive or cannot be performed

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ONC-16.6: Small Bowel Cancer – Restaging/Recurrence

Indication	Imaging Study
Complete resection	◆ See Surveillance below
Recurrence suspected	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
Unresected primary disease or metastatic disease on chemotherapy	Every 2 cycles of chemotherapy: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Further evaluation of an inconclusive liver lesion seen on CT	◆ MRI Abdomen without and with contrast (CPT® 74183)
ONE of the following: ◆ Postoperative elevated or rising CEA or LFTs with negative recent conventional imaging ◆ Isolated metastatic lesion(s) on other imaging and individual is a candidate for aggressive surgical resection or other localized treatment to metastasis for curative intent	◆ PET/CT (CPT® 78815)

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ONC-16.7: Small Bowel Cancer – Surveillance/Follow-up

Indication	Imaging/Lab Study
Stage I-III	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast after completion of surgery, and then annually for 5 years
Stage IV - Metastatic disease (post definitive treatment of all measurable disease, or being observed off therapy)	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast every 6 months for 2 years and then annually for 3 years

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ONC-17: Renal Cell Cancer (RCC)

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ONC-17.0: Renal Cell Cancer (RCC) – General Considerations

- PET considered experimental, investigational, or unproven for initial diagnosis, staging or restaging of renal cell cancer.
- A minority of adult individuals with renal cell cancer (RCC) will have translocations in TFE3 or TFEB, which have a different natural history than “adult type” RCC. Individuals of any age with TFE3 or TFEB translocated RCC should be imaged according to guidelines in **PEDONC-7.4: Pediatric Renal Cell Carcinoma (RCC)** in the Pediatric Oncology Imaging Guidelines.
- Individuals of any age with Wilms tumor should be imaged according to guidelines in section **PEDONC-7.2: Unilateral Wilms Tumor (UWT)** or **PEDONC-7.3: Bilateral Wilms Tumor (BWT)** in the Pediatric Oncology Imaging Guidelines.

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ONC-17.1: Renal Cell Cancer (RCC) – Suspected/Diagnosis

Indication	Imaging Study
◆ Solitary renal mass suspicious for renal cell cancer	◆ See: **AB-35.1: Indeterminate Renal Lesion** in the Abdomen Imaging Guidelines for evaluation of suspected renal malignancies ◆ Chest x-ray ◆ CT Chest with contrast with (CPT® 71260) or without contrast (CPT® 71250) may be obtained for one of the following: ■ New chest x-ray abnormalities ■ Pulmonary signs/symptoms ■ Histologically confirmed renal cell cancer

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ONC-17.2: Renal Cell Cancer (RCC) – Initial Work-up/Staging

Indication	Imaging Study
All individuals	If not done previously: ◆ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast ◆ CT Abdomen and 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: Nuclear Medicine (NM) Imaging in Oncology**)
Signs/symptoms suspicious for brain metastases	◆ MRI Brain without and with contrast (CPT® 70553)

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ONC-17.3: Renal Cell Cancer (RCC) – Restaging/Recurrence

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

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ONC-17.4: Renal Cell Cancer (RCC) – Surveillance

Indication	Imaging Study
Stage I RCC, on active surveillance of renal mass <1 cm	ONE of the following, once within 6 months of surveillance initiation and annually thereafter: ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ MRI Abdomen without and with contrast (CPT® 74183) ◆ See: **AB-35.1: Indeterminate Renal Lesion** in the Abdomen Imaging Guidelines ◆ Chest x-ray (in addition to abdominal imaging) ■ CT Chest with contrast (CPT® 71260) or without contrast (CPT® 71250) may be obtained for one of the following: ▪ New chest x-ray abnormalities ▪ Pulmonary signs/symptoms
Stage I RCC, on active surveillance of renal mass ≥1 cm	One of the following, every 3 months for year 1, every 6 months for years 2 and 3 and annually thereafter: ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ MRI Abdomen without and with contrast (CPT® 74183) ◆ Chest x-ray (in addition to abdominal imaging) ■ CT Chest with contrast (CPT® 71260) or without contrast (CPT® 71250) may be obtained for one of the following: ▪ New chest x-ray abnormalities ▪ Pulmonary signs/symptoms
Follow up after post-ablation therapy of RCC	ONE of the following, at 1 to 6 months post-ablation and then annually for 5 years: ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ MRI Abdomen without and with contrast (CPT® 74183) ◆ Chest x-ray (in addition to abdominal imaging) ■ CT Chest with contrast (CPT® 71260) or without contrast (CPT® 71250) may be obtained for one of the following: ▪ New chest x-ray abnormalities ▪ Pulmonary signs/symptoms
Stage I RCC, after partial or radical nephrectomy	ONE of each of the following, 3 to 12 months post-resection: ◆ CT Chest with (CPT® 71260) or CT Chest without contrast (CPT® 71250) ◆ CT Abdomen with (CPT® 74160) or CT Abdomen without contract (CPT® 74150) or MRI Abdomen without and with contrast (CPT® 74183) Annually for 3 years: ◆ Chest x-ray or CT Chest with (CPT® 71260) or without (CPT® 71250) contrast ◆ Abdominal imaging with any ONE of the following: ■ Abdominal ultrasound (CPT® 76770 or CPT® 76700) ■ CT Abdomen with (CPT® 74160) or without (CPT® 74150) contrast ■ MRI Abdomen without and with contrast (CPT® 74183)

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Indication	Imaging Study
Stage II RCC, post-nephrectomy	ONE of each of the following, 3 to 6 months post-resection: ◆ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast ◆ CT Abdomen with (CPT® 74160) or without (CPT® 74150) contrast or MRI Abdomen without and with contrast (CPT® 74183) ONE of each of the following, every 6 months for 3 years, then annually to year 5: ◆ Chest x-ray or CT Chest with (CPT® 71260) or without (CPT® 71250) contrast ◆ Abdominal imaging with any ONE of the following: ▪ Abdominal ultrasound (CPT® 76770 or CPT® 76700) ▪ CT Abdomen with (CPT® 74160) or without (CPT® 74150) contrast ▪ MRI Abdomen without and with contrast (CPT® 74183)
Stage III RCC, post-nephrectomy	ONE of each of the following, 3 to 6 months post-resection: ◆ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast ◆ CT Abdomen with (CPT® 74160) or without (CPT® 74150) contrast or MRI Abdomen without and with contrast (CPT® 74183) ONE of each of the following, every 3 months for 3 years, then annually to year 5: ◆ CT Chest with (CPT® 71260) or without (CPT® 71250) contrast ◆ CT Abdomen with (CPT® 74160) or without (CPT® 74150) contrast or MRI Abdomen without and with contrast (CPT® 74183)
Stage IV/metastatic disease on maintenance therapy or being observed off therapy	Every 3 months for up to 5 years after completion of active treatment: ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast

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ONC-18: Transitional Cell Cancer

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ONC-18.0: Transitional Cell Cancer – General Considerations

- 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)**.
- Most common histology of bladder cancer is transitional cell (TCC) or urothelial carcinoma (UCC). Rare histologies include squamous cell (imaged according to **ONC-18: Transitional Cell Cancer**) or small cell (imaged according to **ONC-31.8: Extrathoracic Small Cell and Large Cell Neuroendocrine Tumors)**.
- Urachal cancer is rare type of bladder cancer; the most common histology is adenocarcinoma. These are imaged according to muscle invasive bladder cancer.
- PET not routinely indicated in transitional cell cancer with exception noted below in **ONC-18.2: Transitional Cell Cancer – Initial Work-up/Staging**

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ONC-18.1: Transitional Cell Cancer – Suspected/Diagnosis

- See: **AB-39: Hematuria and Hydronephrosis** in the Abdomen Imaging Guidelines for evaluation of suspected transitional cell malignancies.

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ONC-18.2: Transitional Cell Cancer – Initial Work-up/Staging

Indication	Imaging Study
All individuals	ONE of the following: ◆ CT Abdomen and Pelvis without and with contrast (CPT® 74178) ■ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast if contraindication to CT contrast ◆ CT Abdomen and Pelvis without contrast (CPT® 74176) with retrograde pyelogram or renal ultrasound (CPT® 76770 or CPT® 76775) in individuals 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 (CPT® 71260) contrast
Individuals 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 evaluate inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-18.3: Transitional Cell Cancer – Restaging/Recurrence

Indication	Imaging Study
After definitive surgery	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen and Pelvis without and with contrast (CPT® 74178) for post-operative baseline
Recurrence suspicion	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or with and without contrast (CPT® 74178) ◆ CT Chest with contrast (CPT® 71260) for ANY of the following: ■ Signs/symptoms of pulmonary disease ■ Abnormal chest x-ray ■ Prior involvement of the chest
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 and Pelvis with contrast (CPT® 74177) ◆ CT Chest with contrast (CPT® 71260) for ANY of the following: ■ Signs/symptoms of pulmonary disease ■ Prior involvement of the chest ■ Abnormal chest x-ray
To evaluate inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-18.4: Transitional Cell Cancer – Surveillance/Follow-up

Indication	Imaging Study
ANY of the following: ◆ Low grade lesions ◆ High grade Ta lesion ≤3 cm ◆ Papillary urothelial neoplasm of low malignant potential	◆ Advanced imaging is not routinely indicated for surveillance
ANY of the following high-risk non-muscle invasive transitional cell carcinoma of the bladder or upper tracts: ◆ Multifocal high grade lesions ◆ High grade lesions >3 cm ◆ Superficial and minimally invasive (Tis and T1) ◆ BCG unresponsive ◆ Lymphovascular invasion ◆ Prostatic urethral invasion	◆ CT Urogram (CPT® 74178) every 2 years for 10 years ■ MR Urogram (CPT® 74183 and CPT® 72197) may be obtained for renal insufficiency or CT dye allergy
Non-muscle-invasive transitional carcinoma of the bladder treated with cystectomy	◆ CT Urogram (CPT® 74178) at 3 and 12 months post-cystectomy, and then annually for years 2-5 ■ MR Urogram (CPT® 74183 and CPT® 72197) may be obtained for renal insufficiency or CT dye allergy
Muscle invasive lower and upper genitourinary tumors treated with cystectomy or chemoradiation	Every 6 months for 2 years, then annually for 3 more years: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or without and with contrast (CPT® 74178) OR ◆ MR Urogram (CPT® 74183 and CPT® 72197) AND ◆ Chest x-ray ■ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) if abnormal signs/symptoms of pulmonary disease or abnormal chest x-ray
Measurable metastatic disease on maintenance therapy or being monitored off therapy	Every 3 months for up to 5 years after completion of active treatment: ◆ CT Chest with contrast (CPT® 71260)

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Indication	Imaging Study
	◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Urethral cancers (high risk T1 or greater) and urothelial carcinoma of the prostate	Every 6 months for 2 years, then annually: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or without and with contrast (CPT® 74178) OR ◆ MR Urogram (CPT® 74183 and CPT® 72197) AND ◆ Chest x-ray ■ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) if abnormal signs/symptoms of pulmonary disease or abnormal chest x-ray

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ONC-19: Prostate Cancer

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Oncology Imaging Guidelines

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ONC-19.0: Prostate Cancer – General Considerations

- Prostate cancer screening begins at age 45 for individuals at average risk of prostate cancer. However, individuals at high risk may begin screening at age 40. High risk features include:
  - African ancestry
  - Germline mutations (BRCA1 or 2, HOXB13, ATM, CHEK2, or mismatch repair genes - MLH1, MSH2, MSH6, PMS2) that increase the risk of prostate cancer
  - Family history of first or second-degree relative with prostate, male breast, colorectal, pancreatic, endometrial or female breast cancer at age <45 years.
- Individuals with high-risk adverse clinical and pathological factors may benefit from a more aggressive diagnostic and therapeutic approach at the time of relapse after initial treatment. These factors include pre-treatment Gleason score of ≥8, pre-treatment clinical stage of cT3b or higher, positive surgical margins, post-treatment PSA doubling time of <3 months, and an interval to biochemical failure of <3 years after initial treatment.
- PET/CT scan using ^{18}F-FDG radiotracer are considered investigational and experimental for evaluation of prostate cancer.
- Several non-FDG radiotracers such as ^{11}C Choline, ^{18}F-Fluciclovine (AXUMIN®), ^{68}Ga PSMA-11, and ^{18}F Piflufolastat PSMA (Pylarify®) have recently gained FDA approval for evaluation of prostate cancer. Optimal detection rates for these radiotracers vary greatly with PSA levels. False positive rate is high and histological confirmation of positive sites is recommended. Coverage may vary with individual health care plan.
- While early detection of low-volume recurrence after treatment of prostate cancer using PET/CT scans may influence therapeutic decisions, there is lack of evidence that this approach has any meaningful impact on overall survival.
- As 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.
- As laser prostate ablation is considered investigational and experimental at this time, advanced imaging for treatment planning and/or surveillance of laser prostate ablation is not indicated.

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ISUP Prostate Cancer Grade Groups[30]

Grade Group	Gleason Score	Gleason Pattern
1	≤6	≤3+3
2	7	3+4
3	7	4+3
4	8	4+4, 3+5, 5+3
5	9 or 10	4+5, 5+4, or 5+5

NCCN Initial Risk Stratification

- Very Low Risk
  - ALL of the following features are present:
    - Tumor not clinically palpable, but present on one or both lobes on biopsy (cT1a, cT1b, or cT1c)
    - PSA (ng/mL) <10
    - Gleason Grade Group = 1
    - <3 prostate biopsy cores positive, ≤50% cancer in each core
    - PSA Density <0.15 ng/mL/g
- Low Risk
  - ALL of the following features are present, but does not qualify for very low risk:
    - Clinical T Stage = cT1-cT2a (palpable tumor limited to ≤1/2 of one side)
    - PSA (ng/mL) <10
    - Gleason Grade Group = 1
- Favorable Intermediate Risk
  - ALL of the following features are present:
    - Gleason Grade Group = 1 or 2
    - <50% biopsy cores positive (e.g., <6 of 12 cores)
    - And only ONE of the following features is present:
      - Clinical T Stage = cT2b-cT2c (palpable disease confined to one or both lobes of the prostate)
      - PSA (ng/mL) = 10-20
- Unfavorable Intermediate Risk
  - ALL of the following features are present:
    - Clinical T Stage = cT2b-cT2c (palpable disease confined to one or both lobes of the prostate)
    - PSA (ng/mL) = 10-20
    - And at least ONE of the following features are present:
      - Gleason Grade Group = 2 or 3
      - ≥50% biopsy cores positive (e.g., ≥6 of 12 cores)

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- High Risk
  - Only ONE of the following features is present:
    - Clinical T Stage = cT3a (unilateral or bilateral extra-prostatic extension that is not fixed and does not invade the seminal vesicles)
    - PSA (ng/mL) >20
    - Gleason Grade Group = 4 or 5
- Very High Risk
  - PSA (ng/mL) >20
  - And at least ONE of the following features is present:
    - Clinical T stage = cT3b-cT4 (extension into the seminal vesicles or invasion into adjacent structures)
    - Primary Gleason Pattern = 5
    - Gleason Grade Group = 4 or 5 in >4 cores

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, 3D Rendering (CPT® 76377) to generate prostate segmentation data image set for target identification on MRI/Transrectal ultrasound (TRUS) fusion biopsy is approvable as:
  - Subsequent separate standalone request; or
  - As retrospective request for medical necessity.
- For MRI/TRUS fusion biopsy of a PIRADS 1-3 lesion, approval of 3D rendering at independent workstation (CPT® 76376 or CPT® 76377) can be considered on a case-by-case basis.
- If there is no target lesion identified on MRI then 3D rendering and MRI/TRUS fusion biopsy is generally not indicated.
- The 3D rendering for the TRUS component of the fusion is a part of the UroNav Fusion Equipment Software and an additional 3D code CPT® 76376 or CPT® 76377 should not be approved.

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ONC-19.1: Suspected Prostate Cancer

Indication	Imaging Study
ANY of the following: ◆ Age 40-75 years with PSA >3 ng/ml or very suspicious DRE and ONE of the following high risk features: ■ African ancestry ■ Germline mutations that increase the risk of prostate cancer ■ Family history of first or second-degree relative with prostate, male breast, colorectal, pancreatic, endometrial or female breast cancer at age <45 years ◆ Age 45-75 years and ONE of the following: ■ PSA >3 ng/ml ■ Very suspicious DRE ◆ Age >75 years and ONE of the following: ■ PSA ≥4 ng/ml ■ Very suspicious DRE ◆ At least one negative/non-diagnostic TRUS biopsy and ANY of the following: ■ Rising PSA ■ Abnormal DRE ■ Need for confirmatory MR/US fusion biopsy	ANY of the following: ◆ Transrectal ultrasound (CPT® 76872) ◆ TRUS-guided biopsy (CPT® 76942) ◆ MRI Pelvis without and with contrast (CPT® 72197) or MRI Pelvis without contrast (CPT® 72195) if an MR/US guided fusion biopsy is feasible/planned at the requesting facility ◆ MRI/US fusion biopsy (CPT® 76942)
◆ PIRADS 4 or 5 lesion identified on recent diagnostic MRI Pelvis (CPT® 72195 or CPT® 72197) and planning for biopsy to be done by MRI/TRUS fusion technique	◆ 3D Rendering (CPT® 76376 or 76377)
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: ◆ MRI Pelvis without contrast (CPT® 72195) ◆ MRI Pelvis without and with contrast (CPT® 72197) ◆ MRI/US fusion biopsy (CPT® 76942) ◆ MRI guided biopsy (CPT® 77021)

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ONC-19.2: Prostate Cancer – Initial Work-up/Staging

Indication	Imaging Study
Localized prostate cancer with any of the following risk groups (see: **ONC-19.0** for definition of risk groups): ◆ Very low risk ◆ Low risk ◆ Favorable intermediate risk	Advanced imaging is not routinely indicated for initial staging If not already performed prior to biopsy, MRI Pelvis without and with contrast (CPT® 72197) is appropriate for any of the following: ◆ Prior to planned treatment (surgery and/or radiation therapy) ◆ To establish candidacy for active surveillance
Localized prostate cancer with any of the following risk groups (see: **ONC-19.0** for definition of risk groups): ◆ Unfavorable intermediate risk ◆ High risk ◆ Very high risk	Any **ONE** of the following combinations, not all: ◆ CT Chest with contrast (CPT® 71260), CT Abdomen and Pelvis with contrast (CPT® 74177), and Bone scan ◆ CT Chest with contrast (CPT® 71260), CT Abdomen with contrast (CPT® 74160), MRI Pelvis without and with contrast (CPT® 72197), and Bone scan ◆ PET/CT scan (CPT® 78815 or CPT® 78816) using any one of the following radiotracers: ▪ ^{68}Ga-PSMA-11 ▪ ^{18}F Piflufolastat PSMA
Known or clinically suspected metastatic prostate cancer (including prior to prostate biopsy)	CT Chest with contrast (CPT® 71260), CT Abdomen and Pelvis with contrast (CPT® 74177), and Bone scan
Inconclusive bone scan	CT with contrast or MRI without and with contrast of involved body site
For ANY of the following: ◆ Inconclusive bone findings on **both** CT/MRI and bone scan ◆ Conventional imaging studies (CT and bone scan) suggests oligo- or low volume metastatic disease that need further confirmation	◆ PET/CT scan (CPT® 78815 or CPT® 78816) using any one of the following radiotracers: ▪ ^{18}F Fluciclovine ▪ ^{11}C Choline ▪ ^{68}Ga-PSMA-11 ▪ ^{18}F Piflufolastat PSMA PET/CT scan is not indicated if conventional imaging studies suggest widespread metastatic disease

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ONC-19.3: Prostate Cancer – Restaging/Recurrence

Indication	Imaging Study
For ANY 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 prostatectomy or radiation therapy ◆ Inconclusive findings on CT scan	◆ MRI Pelvis without and with contrast (CPT® 72197)
Non-metastatic prostate cancer previously treated with prostatectomy, radiation therapy, ablation, hormonal therapy or chemotherapy **and** any one of the following: ◆ Clinical suspicion of relapse/recurrence ◆ PSA fails to become undetectable post prostatectomy ◆ Palpable anastomotic recurrence ◆ PSA rises above post-treatment baseline to >0.2 ng/mL but <0.5 ng/mL on two consecutive measurements	Any **ONE** of the following combinations: ◆ CT Chest with contrast (CPT® 71260), CT Abdomen and Pelvis with contrast (CPT® 74177), and Bone scan ◆ CT Chest with contrast (CPT® 71260), CT Abdomen with contrast (CPT® 74160), MRI Pelvis without and with contrast (CPT® 72197), and Bone scan
Non-metastatic prostate cancer previously treated with prostatectomy or radiation therapy, and **all** of the following are met: ◆ PSA rises on two consecutive measurements above post-treatment baseline **and** ◆ PSA ≥0.5 ng/mL **and** ◆ Individual is a candidate for salvage local therapy	Any **ONE** of the following combinations, not both: ◆ CT Chest with contrast (CPT® 71260), CT Abdomen and Pelvis with contrast (CPT® 74177), and Bone scan ◆ CT Chest with contrast (CPT® 71260), CT Abdomen with contrast (CPT® 74160), MRI Pelvis without and with contrast (CPT® 72197), and Bone scan ◆ PET/CT scan (CPT® 78815 or CPT® 78816) using any one of the following radiotracers: ■ ^{68}Ga-PSMA-11 ■ ^{18}F Piflufolastat PSMA

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Indication	Imaging Study
Non-metastatic prostate cancer previously treated with prostatectomy or radiation therapy, and **all** of the following are met: ◆ PSA rises on two consecutive measurements above post-treatment baseline **and** ◆ PSA ≥1 ng/mL **and** ◆ Recent CT scan and bone scan are negative for metastatic disease **and** ◆ Individual is a candidate for salvage local therapy	◆ PET/CT scan (CPT® 78815 or CPT® 78816) using any **ONE** of the following radiotracers: ■ ^{18}F-Fluciclovine ■ ^{11}C Choline ■ ^{68}Ga-PSMA-11 ■ ^{18}F Piflufolastat PSMA
Metastatic prostate cancer receiving treatment with chemotherapy	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) and CT scan of any involved body part every 2 cycles (6 to 8 weeks) while on chemotherapy ◆ Bone scan may be obtained every 3-6 months
Metastatic prostate cancer receiving anti-androgen therapy	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) and CT scan of any involved body part every 3 months while on anti-androgen therapy ◆ Bone scan may be obtained every 3-6 months
Prior to start of Xofigo (Radium-223) therapy	◆ ONE time CT Chest, Abdomen, and Pelvis with contrast (CPT® 71260 and CPT® 74177)
Inconclusive bone scan	◆ CT with contrast or MRI without and with contrast of involved body site
For ANY of the following: ◆ Inconclusive bone findings on **both** CT/MRI and bone scan ◆ Conventional imaging studies (CT and bone scan) suggests oligo- or low volume metastatic disease that needs further confirmation	◆ PET/CT scan (CPT® 78815 or CPT® 78816) using any one of the following radiotracers: ■ ^{18}F Fluciclovine ■ ^{11}C Choline ■ ^{68}Ga-PSMA-11 ■ ^{18}F Piflufolastat PSMA PET/CT scan is not indicated if conventional imaging studies suggest widespread metastatic disease

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ONC-19.4: Prostate Cancer – Follow-up On Active Surveillance

Active surveillance is being increasingly utilized in prostate cancer, and this therapeutic option involves regimented monitoring of an individual with known diagnosis of low risk prostate cancer for disease progression, without specific anticancer treatment. While being treated with active surveillance, an individual is generally considered a potential candidate for curative intent treatment approaches in the event that disease progression occurs.

It is important to distinguish active surveillance from watchful waiting (or observation), which is generally employed in individuals with limited life expectancy. Watchful waiting involves cessation of routine monitoring and treatment is initiated only if symptoms develop.

Current active surveillance guidelines suggest the following protocol:

- PSA every 6 months
- Digital Rectal Exam (DRE) every 12 months
- Repeat prostate biopsy every 12 months
- Repeat mpMRI (CPT® 72195 or CPT® 72197) no more often than every 12 months

Indication	Imaging Study
Routine monitoring on active surveillance protocol	◆ MRI Pelvis without (CPT® 72195) or without and with contrast (CPT® 72197) at initiation of active surveillance, and every 12 months thereafter
For ANY of the following: ◆ Progression is suspected based on DRE changes or rising PSA and a recent TRUS biopsy was negative ◆ Repeat TRUS biopsy shows progression to a higher Gleason score	◆ MRI Pelvis without (CPT® 72195) or MRI Pelvis without and with contrast (CPT® 72197)

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ONC-19.5: Surveillance/Follow-up For Treated Prostate Cancer

Indication	Imaging Study
ANY of the following: ◆ Asymptomatic or stable chronic symptoms ◆ Stable DRE findings ◆ Stable PSA levels	◆ Advanced imaging is not routinely indicated for surveillance

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ONC-20: Testicular, Ovarian and Extragonadal Germ Cell Tumors

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ONC-20.0: Testicular, Ovarian and Extragonadal Germ Cell Tumors – General Considerations

- This section applies to primary germ cell tumors occurring outside the central nervous system if individual's age >15 years at the time of initial diagnosis. Individuals age ≤15 years at diagnosis should be imaged according to pediatric guidelines in: **PEDONC-10: Pediatric Germ Cell Tumors** in the Pediatric Oncology Imaging Guidelines.
- These guidelines are for germ cell tumors of the testicle, ovary and extragonadal sites as well as malignant sex cord stromal tumors (granulosa cell and Sertoli-Leydig cell tumors).
- 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% to 20%)
    - Endodermal Sinus Tumors (ovarian)
    - Combinations of all of the above (Mixed)
- 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 are the preferred modality of imaging to assess for recurrence.
- PET/CT Scan is considered experimental, investigational, or unproven for evaluation of non-seminomatous germ cell tumors
- Active surveillance in testicular cancer refers to treatment with surgery (orchiectomy) alone without any additional post-operative treatment such as chemotherapy or radiotherapy

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ONC-20.1: Testicular, Ovarian and Extragonadal Germ Cell Tumors – Initial Work-Up/Staging

Indication	Imaging Study
Orchiectomy/oophorectomy is both diagnostic and therapeutic	All individuals, following orchiectomy or oophorectomy: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
For ANY of the following: ◆ Non-seminoma histology ◆ Ovarian germ cell tumor ◆ Abdominal lymphadenopathy noted on CT scan ◆ Abnormal Chest X-ray or signs/symptoms suggestive of chest involvement	◆ CT Chest with contrast (CPT® 71260)
Extragonadal Germ Cell Tumor	◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177)

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ONC-20.2: Testicular, Ovarian and Extragonadal Germ Cell Tumors – Restaging/Recurrence

Indication	Imaging Study
Treatment response for stage II-IV individuals with measurable disease on CT	◆ CT with contrast of previously involved body areas every 2 cycles
Seminoma with residual mass >3 cm after completion of chemotherapy	◆ PET/CT (CPT® 78815)
End of therapy evaluation for NSGCT post chemotherapy or post retroperitoneal lymph node dissection (RPLND)	◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Recurrence suspected, including increased tumor markers	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ Ultrasound (CPT® 76856 or CPT® 76857) of the remaining gonad if applicable
Unexplained pulmonary symptoms despite a negative chest x-ray, or new findings on chest x-ray	◆ CT Chest with contrast (CPT® 71260)
All others	◆ See: **ONC-20.3: Surveillance**

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ONC-20.3: Testicular, Ovarian and Extragonadal Germ Cell Tumors – Surveillance

Indication	Imaging Study
Stage I Seminoma treated with orchiectomy alone (no radiotherapy or chemotherapy, also called active surveillance)	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) at 3, 6 and 12 months post-orchiectomy, then every 6 months for years 2 and 3, and then annually until year 5
Stage I Seminoma treated with radiotherapy and/or chemotherapy	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) annually for 3 years
Stage IIA and non-bulky Stage IIB Seminomas treated with radiotherapy or chemotherapy	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) once at 3 months then once at 6 to 12 months after completion of therapy, then annually until year 3
Bulky Stage IIB, IIC, and III Seminomas treated with chemotherapy	<u>For individuals with ≤3 cm residual mass:</u> ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) every 4 months for 1 year, every 6 months for 1 year and then annually for 2 additional years <u>For individuals with >3 cm residual mass and negative PET scan:</u> ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) at 6 and 12 months after completion of therapy, then annually until year 5 <u>For individuals with thoracic disease:</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 after completion of therapy
Stage IA Non-Seminomatous germ cell tumors treated with orchiectomy alone (without risk factors)	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) every 6 months for 2 years and then annually for year 3
Stage IB Non-Seminomatous germ cell tumors treated with orchiectomy alone (with risk factors – lymphovascular invasion or invasion into spermatic cord/scrotum)	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) every 4 months for 1 year, then every 6 months for 2 years, then annually until year 4
Stage IA/IB Non-Seminomatous germ cell tumors treated with chemotherapy and/or primary RPLND	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) annually for 2 years

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Indication	Imaging Study
Stage II-III Non-Seminomatous germ cell tumors with complete response to chemotherapy +/- post-chemotherapy RPLND	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) once at 6, 12, 24 and 36 months after completion of therapy For individuals with thoracic disease: ◆ CT Chest with contrast (CPT® 71260) every 6 months for 2 years, then annually until year 4 after completion of therapy
Stage IIA or IIB Non-Seminomatous germ cell tumors treated with post-primary RPLND and adjuvant chemotherapy	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) once at 4 months after completion of therapy
Stage IIA or IIB Non-Seminomatous germ cell tumors treated with post-primary RPLND without adjuvant chemotherapy	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) once at 3 to 4 months after completion of therapy and repeat annually for 1 year
All stages of ovarian dysgerminoma germ cell tumors	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) every 4 months for 1 year, every 6 months for 1 year and then annually for 3 years after completion of therapy
All ovarian non-dysgerminoma germ cell tumors ◆ Embryonal tumor ◆ Endodermal sinus tumor ◆ Mature or immature teratoma ◆ Non-gestational choriocarcinoma	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) every 4 months for 1 year, every 6 months for 1 year and then annually for 3 years after completion of therapy ◆ CT Chest with contrast (CPT® 71260) every 4 months for 1 year and every 6 months for 1 year after completion of therapy
Sex cord stromal tumors (male and female)	◆ No routine advanced imaging indicated unless elevated tumor markers or clinical signs/symptoms of recurrence
Extragonadal germ cell tumors	◆ CT of the involved region every 3 months for one year and every 6 months for one year.

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ONC-21: Ovarian Cancer

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ONC-21.0: Ovarian Cancer – General Considerations

- Ovarian cancers include: epithelial ovarian cancers, ovarian cancers of low malignant potential and mixed Müllerian tumors, primary peritoneal and fallopian tube cancers.
- Germ cell tumors and sex cord stromal tumors (granulosa cell tumors), are imaged according to **ONC-20: Testicular, Ovarian and Extragonadal Germ Cell Cancer**.

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ONC-21.1: Screening for Ovarian Cancer

Indication	Imaging/Lab Study
High Risk Factors: ◆ Family history of BRCA 1 or BRCA 2 mutations ◆ Family history of ovarian cancer ◆ 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 ◆ Low parity ◆ Decreased fertility ◆ Delayed childbearing	◆ 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)
Known BRCA-1 or BRCA-2 mutation	◆ Transvaginal ultrasound (CPT® 76830), combined with CA-125 for ovarian cancer screening may be considered annually starting at age 30, until risk-reducing salpingo-oophorectomy is performed

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ONC-21.2: Ovarian Cancer – Suspected/Diagnosis

- See: **PV-5.3: Complex Adnexal Masses** for imaging guidelines for evaluation of suspected ovarian malignancies
- Staging of ovarian cancer is primarily surgical and routine imaging is not indicated pre-operatively, unless it is obtained to evaluate specific signs/symptoms.
- To differentiate the origin of pelvic masses that are not clearly of ovarian origin, see: **PV-5.1: Suspected Adnexal Mass**.

Indication	Imaging/Lab Study
◆ Pelvic symptoms (pelvic pain, abdominal bloating) ◆ Palpable pelvic mass	◆ Transvaginal (TV) ultrasound imaging (CPT® 76830) and/or Pelvic ultrasound (CPT® 76856 or CPT® 76857)
Ultrasound shows a complex and/or solid adnexal mass	◆ See: **PV-5.3: Complex Adnexal Masses**
Ultrasound shows complex and/or solid adnexal mass suspicious for ovarian malignancy AND any of the following signs/symptoms concerning for metastatic disease: ◆ Ascites ◆ Abdominal symptoms (distension, tenderness) ◆ Elevated CA-125 ◆ Elevated LFTs ◆ Obstructive uropathy**	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ **CT Abdomen and Pelvis without and with contrast (CT Urogram – CPT® 74178) may be approved only for symptoms of obstructive uropathy

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ONC-21.3: Ovarian Cancer – Initial Work-Up/Staging

Indication	Imaging Study
Clinical stage II disease or higher	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Chest with contrast (CPT® 71260) for: ■ Abnormal signs/symptoms of pulmonary disease ■ 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)

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ONC-21.4: Ovarian Cancer – 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 ◆ Elevated tumor markers (CA-125, inhibin) ◆ Signs or symptoms of recurrence	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Chest with contrast (CPT® 71260) for ANY of the following: ■ Known prior thoracic disease ■ New or worsening pulmonary symptoms ■ New or worsening chest x-ray findings ■ Rising tumor markers (CA-125, inhibin)
Monitoring response to treatment (every 2 cycles, or ~every 6 to 8 weeks)	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Chest with contrast (CPT® 71260) for ANY of the following: ■ Known prior thoracic disease ■ New or worsening pulmonary symptoms ■ New or worsening chest x-ray findings
◆ 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)

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ONC-21.5: Ovarian Cancer – Surveillance

Indication	Imaging Study
Stages I-III	◆ Advanced imaging is not routinely indicated for surveillance
Measurable metastatic disease on maintenance therapy or being monitored off therapy	Every 3 months for up to 5 years after completion of active treatment: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved body areas

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ONC-22: Uterine Cancer

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ONC-22.0: Uterine Cancer – General Considerations

- Gestational trophoblastic neoplasia (GTN) – see: **PV-16.1: Molar Pregnancy and Gestational Trophoblastic Neoplasia (GTN)** in the Pelvic Imaging Guidelines.
- Most common cell type is adenocarcinoma. Uterine sarcomas are also imaged according to this guideline.
- Staging of uterine cancer is primarily surgical. Advanced imaging is not routinely indicated pre-operatively for laparoscopic/minimally invasive surgery unless initial staging criteria are met. Pelvic and para-aortic lymphadenectomy can still be performed.

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ONC-22.1: Uterine Cancer – Suspected/Diagnosis

- See: **PV-2.1: Abnormal Uterine Bleeding** in the Pelvic Imaging Guidelines for evaluation of suspected uterine malignancies.

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ONC-22.2: Uterine Cancer – Initial Work-Up/Staging

Indication	Imaging Study
ANY of the following: ◆ Extrauterine disease suspected ◆ To assess local extent of tumor prior to fertility-sparing surgery for well-differentiated Stage IA (grade 1) uterine cancer ◆ Poor surgical candidate (due to medical comorbidities) considering medical therapy	◆ MRI Pelvis without and with contrast (CPT® 72197) ◆ Transvaginal ultrasound (CPT® 76830) if MRI is contraindicated ◆ Chest x-ray ■ CT Chest with contrast (CPT® 71260) if chest x-ray is abnormal
ANY of the following: ◆ Abdominal symptoms or abnormal examination findings ◆ Elevated LFTS ◆ Other imaging studies suggest liver involvement	ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen with contrast (CPT® 74160)
ANY of the following high-risk histologies: ◆ Papillary serous ◆ Clear cell ◆ High grade/poorly differentiated endometroid carcinoma ◆ Uterine sarcomas: ■ Carcinosarcoma ■ Soft tissue sarcoma of the uterus ■ Leiomyosarcoma ■ Rhabdomyosarcoma ■ Undifferentiated sarcoma ■ Endometrial stromal sarcoma	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
Tumors detected incidentally or incompletely staged surgically **and** ANY of the following high risk features: ◆ Myoinvasion >50% ◆ Cervical stromal involvement ◆ Lymphovascular invasion ◆ Tumor >2 cm	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
Inconclusive findings on conventional imaging	◆ PET/CT scan (CPT® 78815)

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ONC-22.3: Uterine Cancer – Restaging/Recurrence

Indication	Imaging Study
◆ Unresected disease ◆ Medically inoperable disease ◆ Incomplete surgical staging ◆ Difficult or abnormal examination ◆ Elevated LFTs or rising tumor markers ◆ Signs or symptoms of recurrence	◆ CT Chest (CPT® 71260) **and** ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Monitoring response to chemotherapy (every 2 cycles, ~every 6-8 weeks) for: ◆ Unresected primary disease ◆ Metastatic disease	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Chest with contrast (CPT® 71260) for: ■ New/worsening pulmonary symptoms ■ Abnormal chest x-ray findings ■ Known prior pulmonary involvement
Any of the following: ◆ After fertility sparing treatment ◆ Inconclusive CT scan findings	◆ MRI Pelvis without and with contrast (CPT® 72197)
◆ Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-22.4: Uterine Cancer – Surveillance

Indication	Imaging Study
Stage I-III of uterine carcinoma	Advanced imaging is not routinely indicated for surveillance
Measurable metastatic disease on maintenance therapy or being monitored off therapy	Every 3 months for up to 5 years after completion of definitive treatment: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved body areas
All stages of uterine sarcoma: ◆ Soft tissue sarcoma of the uterus ◆ Leiomyosarcoma ◆ Adenosarcoma ◆ Carcinosarcoma ◆ Rhabdomyosarcoma ◆ Undifferentiated sarcoma ◆ Endometrial stromal sarcoma	CT Chest (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177) every 3 months for 2 years, every 6 months for 3 years, and then every 1-2 years until year 10

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ONC-23: Cervical Cancer

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ONC-23.0: Cervical Cancer – General Considerations

- 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 the primary histology is uterine in origin, follow imaging recommendations for uterine cancer, see: **ONC-22: Uterine Cancer**.

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ONC-23.1: Cervical Cancer – Suspected/Diagnosis

Indication	Imaging Study
All	◆ Biopsy should be performed prior to imaging

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ONC-23.2: Cervical Cancer – Initial Work-Up/Staging

Indication	Imaging Study
Stage IB1 or higher stages	ANY of the following combinations, not both: ◆ PET/CT (CPT® 78815) or ◆ CT Chest with contrast (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177)
Any size cervical cancer incidentally found in a hysterectomy specimen	◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
ANY of the following: ◆ To assess local extent of disease prior to fertility sparing treatment ◆ To assess residual pelvic disease post-operatively ◆ Inconclusive CT findings	◆ MRI Pelvis without and with contrast (CPT® 72197)
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-23.3: Cervical Cancer – Restaging/Recurrence

Indication	Imaging Study
If primary therapy was surgery	◆ See: **ONC-23.4: Cervical Cancer – Surveillance**
If primary therapy radiation therapy ± chemotherapy (no surgery)	ANY of the following, not both: ◆ PET/CT (CPT® 78815) at least 12 weeks after completion of treatment OR ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
Unresectable disease or metastatic disease on systemic treatment	Every 2 cycles of treatment (commonly every 6 to 8 weeks): ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of other involved or symptomatic areas
Suspected or biopsy proven recurrence	ANY of the following, not both: ◆ PET/CT (CPT® 78815) OR ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177)
Inconclusive findings on CT scan	◆ MRI Pelvis without and with contrast (CPT® 72197)

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ONC-23.4: Cervical Cancer – Surveillance

Indication	Imaging Study
Stage I disease treated with fertility sparing approach	◆ MRI Pelvis without and with contrast (CPT® 72197) at 6 months after surgery and then annually for 2 years
All individuals	◆ No routine advanced imaging needed in asymptomatic individuals.

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ONC-24: Anal Cancer & Cancers of the External Genitalia

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ONC-24.0: Anal Carcinoma – General Considerations

- Most are squamous cell carcinomas, although some transitional and cloacogenic carcinomas are seen.
- Adenocarcinoma of the anal canal is managed as rectal cancer according to **ONC-16: Colorectal and Small Bowel Cancer**
- Squamous cell carcinoma of the perianal region (up to 5 cm radius from the anal verge) are imaged according to anal carcinoma guidelines.
- Bowen's disease and Paget's disease of the perianal and perigenital skin are considered non-invasive/in-situ conditions and do not routinely require advanced imaging. See: **ONC-5.6: Non-Melanoma Skin Cancers – Initial Work-up/Staging**.

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ONC-24.1: Anal Carcinoma – Suspected/Diagnosis

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

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ONC-24.2: Anal Carcinoma – Initial Work-up/Staging

Indication	Imaging Study
All individuals	◆ CT Chest with contrast (CPT® 71260) and Any ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT Abdomen with contrast (CPT® 74160) and MRI Pelvis without and with contrast (CPT® 72197)
◆ Stage II-III Squamous Cell Carcinoma of the Anal Canal and no evidence of metastatic disease by conventional imaging ◆ Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-24.3: Anal Carcinoma – Restaging/Recurrence

Indication	Imaging Study
Stage I treated with complete surgical resection	◆ See: **ONC-24.4: Anal Carcinoma – Surveillance** for surveillance guidelines
Stages I, II and III – post chemoradiation evaluation	Any ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Metastatic (stage IV) disease	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) every 2 cycles (generally 6 to 8 weeks) on treatment ◆ ◆ CT Chest with contrast (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 and Any ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-24.4: Anal Carcinoma – Surveillance

Indication	Imaging Study
Stage I	◆ Advanced imaging is not routinely indicated for surveillance
◆ Stage II ◆ Stage III ◆ Local recurrence treated definitively	◆ CT Chest (CPT® 71260) with contrast or CT Chest without contrast (CPT® 71250) annually for 3 years ◆ And ANY one of the following annually for three years: ■ CT Abdomen and Pelvis with contrast (CPT® 74177) ■ MRI Abdomen without and with contrast (CPT® 74183) and MRI Pelvis without and with contrast (CPT® 72197)
Stage IV – measurable metastatic disease on maintenance treatment or being observed off treatment	Every 3 months for up to 5 years after completion of all treatment: ◆ CT Chest (CPT® 71260) with contrast ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)

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ONC-24.5: Cancers of External Genitalia – General Considerations

- These imaging guidelines are applicable for squamous cell carcinomas arising from the vulva, vagina, penis and scrotum

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ONC-24.6: Cancers of External Genitalia – Initial Work-Up/Staging

Indication	Imaging Study
For vulvar cancer >1 mm (T1b) in size	For planned sentinel lymph node (SLN) biopsy: Lymph system imaging (lymphoscintigraphy, CPT® 78195)
For stage II or higher	ONE of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) OR ◆ CT Abdomen with contrast (CPT® 74160) and MRI Pelvis without and with contrast (CPT® 72197) ◆ CT Chest with contrast (CPT® 71260) is indicated only for: ■ Signs/symptoms suggestive of chest involvement ■ Abnormal findings on chest x-ray
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-24.7: Cancers of External Genitalia – Restaging/Recurrence

Indication	Imaging Study
◆ Difficult or abnormal examination ◆ Elevated LFTs ◆ Signs or symptoms of recurrence ◆ Biopsy proven recurrence	◆ CT Chest with contrast (CPT® 71260) And ANY one of the following: ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast
Individuals receiving systemic treatment	◆ CT Abdomen and Pelvis with contrast (CPT® 74177) every 2 cycles (generally 6 to 8 weeks) during treatment and at the end of planned chemotherapy treatment ◆ CT Chest with contrast (CPT® 71260) if chest x-ray is abnormal or if symptoms of chest involvement
Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815)

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ONC-24.8: Cancers of External Genitalia – Surveillance

Indication	Imaging Study
◆ All stages of vulvar and vaginal cancers	◆ Routine advanced imaging is not indicated for asymptomatic surveillance
◆ Penile Cancer: stage I-IIIA	◆ Routine advanced imaging is not indicated for asymptomatic surveillance
◆ Penile cancer: stages IIIB and higher	◆ CT Abdomen and 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

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ONC-25: Multiple Myeloma and Plasmacytomas

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ONC-25.0: Multiple Myeloma and Plasmacytomas – General Considerations

- Multiple myeloma (MM) 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 group of disorders can be classified as below, which influence imaging modality of choice.

Condition	Monoclonal protein	Bone marrow plasma cells	CRAB criteria**
Solitary Plasmacytoma (biopsy proven tumor containing plasma cells)	<3 gm/dL	Absent	Absent
Monoclonal Gammopathy of Unknown Significance (MGUS)	<3 gm/dL	<10%	Absent
Smoldering Myeloma (SMM) (stage I MM or asymptomatic MM)	≥3 gm/dL	10% - 60%	Absent
Multiple Myeloma (MM)	≥3 gm/dL	≥10%	Present

**CRAB criteria = hypercalcemia, renal insufficiency, anemia, lytic bony lesions

- Diagnosis and monitoring of response to therapy is primarily with laboratory studies that include urine and serum monoclonal protein levels, serum free light chain levels, LDH and beta-2 microglobulin. Routine advanced imaging to monitor response to treatment is not indicated.
- Rarely, (<5%), an individual may have Nonsecretory Myeloma, which does not produce measurable M-protein. These individuals require imaging as primary method to monitor disease.
- Other conditions that may present with Monoclonal Gammopathy include:
  - POEMS syndrome: Polyneuropathy, Organomegaly, Endocrinopathy, Monoclonal protein and Skin Changes – may also have sclerotic bone lesions and Castleman's disease. See: **ONC-25.2: Multiple Myeloma and Plasmacytomas – Initial Work-up/Staging** for imaging recommendations.
  - Waldenström's Macroglobulinemia: IgM monoclonal protein along with bone marrow infiltration of small lymphocytes. See: **ONC-27.10: Waldenström Macroglobulinemia or Lymphoplasmacytic Lymphoma** for imaging recommendations.
  - Systemic Light chain Amyloidosis: light chain monoclonal protein in serum or urine with clonal plasma cells in bone marrow, systemic involvement of the kidneys, liver, heart, gastrointestinal tract or peripheral nerves due to amyloid deposition. See: **ONC-25.2: Multiple Myeloma and Plasmacytomas – Initial Work-up/Staging** and **CD-3.8: Cardiac Amyloidosis** for imaging recommendations for systemic light chain amyloidosis.

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ONC-25.1: Multiple Myeloma and Plasmacytomas – Suspected/Diagnosis

Indication	Imaging Study
All	◆ X-ray skeletal series

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ONC-25.2: Multiple Myeloma and Plasmacytomas – Initial Work-Up/Staging

Indication	Imaging Study
ANY of the following: ◆ Abnormal skeletal survey ◆ Abnormal myeloma labs ◆ Signs/symptoms of multiple myeloma	◆ Whole body low-dose skeletal CT (CPT® 76497)
ANY of the following: ◆ If skeletal CT is negative, inconclusive, or not feasible ◆ Suspected solitary bone/osseous plasmacytoma	ONE of the following: ◆ MRI Bone Marrow Blood Supply (CPT® 77084) ◆ 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 ◆ CT contrast as requested of a specific area to determine radiotherapy or surgical candidacy, or for suspected extraosseous plasmacytoma
ANY of the following (after above tests completed): ◆ Determine if plasmacytoma is truly solitary ◆ Suspected extraosseous plasmacytomas ◆ Suspected progression of MGUS or SMM to a more malignant form and CT/MRI imaging are negative ◆ Whole body skeletal CT and MRI Bone Marrow are negative, inconclusive, or not feasible	◆ PET/CT (CPT® 78815 or CPT® 78816)
ANY of the following: ◆ Systemic light chain amyloidosis ◆ POEMS syndrome	◆ CT Chest with contrast (CPT® 71260) and ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)

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ONC-25.3: Multiple Myeloma and Plasmacytomas – Restaging/Recurrence

Indication	Imaging Study
Extra-osseous plasmacytoma response to initial therapy	ONE of the following: ◆ CT of any previously involved area, contrast as requested ◆ MRI of any previously involved area, contrast as requested
Known spine involvement with new neurological signs/symptoms or worsening pain	◆ MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), Lumbar spine (CPT® 72158) without and with contrast
Treatment response assessment ◆ After completion of primary therapy ◆ Non-secretory multiple myeloma ◆ To determine therapy response with inconclusive labs	ONE of the following: ◆ Whole body low-dose skeletal CT scan (CPT® 76497) ◆ MRI Bone Marrow Blood Supply (CPT® 77084) ◆ 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 without contrast, or MRI without and with contrast for any previously involved bony area or symptomatic area
ANY of the following: ◆ Suspected relapse/recurrence ◆ Suspected progression of MGUS or SMM to a more malignant form	ONE of the following: ◆ Whole body low-dose skeletal CT (CPT® 76497) ◆ MRI Bone Marrow Blood Supply (CPT® 77084) ◆ 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 without contrast, or MRI without and with contrast for any previously involved bony area or symptomatic area
ANY of the following: ◆ Negative PET will allow change in management from active treatment to maintenance or surveillance. ◆ Inconclusive findings on conventional imaging	◆ PET/CT (CPT® 78815 or CPT® 78816)

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Indication	Imaging Study
Stem cell transplant recipients	ONE of the following, once before transplant and once within 30-100 days after transplant: ◆ Whole body low-dose skeletal CT scan (CPT® 76497) ◆ MRI Bone Marrow Blood Supply (CPT® 77084) ◆ 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

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ONC-25.4: Multiple Myeloma and Plasmacytomas – Surveillance

Indication	Study
◆ Plasmacytomas ◆ Smoldering myeloma ◆ Non-secretory multiple myeloma	ANY ONE of the following annually for 5 years: ◆ Whole body low-dose skeletal CT (CPT® 76497) ◆ MRI Bone Marrow Blood Supply (CPT® 77084) ◆ Skeletal survey
Multiple myeloma surveillance for ANY of the following: ◆ After primary treatment ◆ After stem cell transplant ◆ On or off maintenance therapy	◆ Myeloma labs are primarily used for follow up ◆ Advanced imaging is not routinely indicated for surveillance in asymptomatic individuals

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ONC-26: Leukemias, Myelodysplasia and Myeloproliferative Neoplasms

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ONC-26.1: Leukemias, Myelodysplasia and Myeloproliferative Neoplasms – General Considerations

- PET imaging is considered investigational, experimental, or unproven for all indications in acute lymphoblastic leukemia, acute myeloid leukemia, and chronic myeloid leukemia.
- Routine advanced imaging is not medically necessary for the evaluation and management of Hairy cell leukemia in the absence of specific localizing clinical symptoms.

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ONC-26.2: Acute Leukemias

- Imaging indications for acute lymphoblastic leukemia in adult individuals are identical to those for pediatric individuals. See: **PEDONC-3.2: Acute Lymphoblastic Leukemia (ALL)** in the Pediatric Oncology Imaging Guidelines.
- Imaging indications for acute myeloid leukemia in adult individuals are identical to those for pediatric individuals. See: **PEDONC-3.3: Acute Myeloid Leukemia (AML)** in the Pediatric Oncology Imaging Guidelines.

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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.
- For work-up of elevated blood counts, see: **ONC-30.3: Paraneoplastic Syndromes – General Considerations**.

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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).

Indication	Imaging Study
Initial Staging/Diagnosis	◆ Advanced imaging is not routinely indicated for initial evaluation of asymptomatic individuals
For ANY of the following: ◆ Bulky lymph node mass (>10 cm) ◆ Spenomegaly >6 cm below costal margin ◆ Presence of B symptoms ◆ Progressive anemia and thrombocytopenia ◆ Prior to planned systemic therapy	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment Response	◆ For individuals 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 individuals without bulky nodal disease at diagnosis
End of Therapy Evaluation	◆ For individuals with bulky nodal disease at diagnosis, CT with contrast of previously involved area(s)
Suspected Progression	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and 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)

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Indication	Imaging Study
Surveillance	For individuals with bulky nodal disease at diagnosis, every 6 months for two years, then annually: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s) Routine imaging is not indicated for individuals without bulky nodal disease at diagnosis

- CLL/SLL is monitored with serial laboratory studies. Routine advanced imaging is not indicated for monitoring treatment response or surveillance, except when initial studies reveal bulky disease involvement.
- Bulky disease is defined as lymph node mass >10 cm or spleen >6 cm below costal margin

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ONC-27: Non-Hodgkin Lymphomas

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ONC-27.1: Non-Hodgkin Lymphomas – General Considerations

- Lymphoma is often suspected when individuals have any of the following:
  - Bulky lymphadenopathy (lymph node mass >10 cm in size), hepatomegaly or splenomegaly
  - The presence of systemic symptoms (fever, drenching night sweats or unintended weight loss of >10%, called “B symptoms”)
- Individuals with AIDS-related lymphoma should be imaged according to the primary lymphoma histology
- See: **ONC-31.11: Castleman’s Disease (unicentric and multicentric)** for guidelines covering Castleman’s disease.
- See: **ONC-26.4: Chronic Lymphocytic Leukemia (CLL)/Small Lymphocytic Lymphoma (SLL)** for guidelines covering Chronic Lymphocytic Leukemia (CLL)/Small Lymphocytic Lymphoma (SLL).

Indication	Imaging Study
Biopsy proven lymphoma or suspected lymphoma with one of the following: ◆ Bulky lymphadenopathy (LN mass >10 cm) ◆ Hepatomegaly ◆ Splenomegaly ◆ B symptom: Unexplained fever, drenching night sweats, unintended weight loss >10% total body weight	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ■ MRI without and with contrast for individuals who cannot tolerate CT contrast due to allergy or impaired renal function
Signs or symptoms of disease involving the neck	◆ CT Neck with contrast (CPT® 70491)
Signs or symptoms suggesting CNS involvement with lymphoma.	◆ MRI Brain without and with contrast (CPT® 70553) ◆ See: **ONC-2.7: CNS Lymphoma (also known as Microglioma)**
Known or suspected bone involvement with lymphoma	◆ MRI without and with contrast of symptomatic or previously involved bony areas ■ Bone scan is inferior to MRI for evaluation of known or suspected bone involvement with lymphoma
Determine a more favorable site for biopsy when a relatively inaccessible site is contemplated	◆ PET/CT (CPT® 78815 or CPT® 78816) ■ PET/CT is not medically necessary for all other indications prior to histological confirmation of lymphoma

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ONC-27.2: Diffuse Large B Cell Lymphoma (DLBCL)

- Grey zone lymphomas, primary mediastinal B cell lymphomas, Grade 3 (high) follicular lymphoma and double-hit or triple-hit lymphomas should also be imaged according to these guidelines.
- PET/CT scan is not generally supported for interim restaging (monitoring response to treatment) due to increased false-positive results. Treatment intensification based on positive interim PET/CT scan does not improve outcomes. Any positive findings noted on an interim PET/CT scan should be biopsied before changing treatment.

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment response for stages I and II	ANY one of the following may be approved, not both: ◆ CT with contrast of previously involved area(s) may be approved every 2 cycles (6-8 weeks) of therapy Or ◆ PET/CT (CPT® 78815 or CPT® 78816) after 3-4 cycles of chemotherapy ■ If PET/CT scan shows complete response, it serves as end of therapy evaluation and may not be repeated after completion of all planned chemotherapy
Treatment response for stages III and IV	◆ CT with contrast of previously involved area(s) may be approved every 2 cycles (6-8 weeks) of therapy ◆ PET/CT is not routinely indicated for monitoring response, but can be considered in rare circumstances when CT did not show disease (e.g. bone).
End of Chemotherapy and/or Radiation Therapy Evaluation	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) may be approved at the end of chemotherapy 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 and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s) ◆ PET/CT can be considered in rare circumstances (e.g. bone involvement).
Biopsy-proven recurrence	◆ PET/CT (CPT® 78815 or CPT® 78816)

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Indication	Imaging Study
CAR-T cell therapy	Once before treatment and once 30-60 days after completion of treatment: ◆ PET/CT (CPT® 78815 or CPT® 78816)
Surveillance	◆ Stage I and II: ■ No routine advanced imaging indicated ◆ Stage III, stage IV, relapsed lymphoma, or any stage primary cutaneous diffuse large B cell lymphoma – every 6 months for 2 years after completion of treatment: ■ CT Chest with contrast (CPT® 71260) ■ CT Abdomen and Pelvis with contrast (CPT® 74177) ■ CT with contrast of previously involved area(s)

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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 guidelines found in **ONC-27.2: Diffuse Large B Cell Lymphoma (DLBCL).**

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
For ANY of the following: ◆ If radiation therapy is being considered for stage I or II disease ◆ Pediatric-type follicular lymphoma in adults	◆ PET/CT (CPT® 78815 or CPT® 78816)
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: ◆ PET/CT (CPT® 78815 or CPT® 78816) OR ◆ CT Chest with contrast (CPT® 71260) and ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ 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 and 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 ANY of the following: ◆ After completion of active treatment ◆ On maintenance treatment ◆ Observation without any treatment	For all stages, every 6 months for two years, then annually: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s)
Surveillance of pediatric-type follicular lymphoma in adults	Advanced imaging is not indicated routinely after complete response

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ONC-27.4: Marginal Zone Lymphomas

- MALT lymphomas in any location should also be imaged according to these guidelines
- Splenic Marginal Zone Lymphoma is diagnosed with splenomegaly, peripheral blood flow cytometry and bone marrow biopsy. Splenectomy is diagnostic and therapeutic. PET scan is not routinely indicated prior to splenectomy.

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) If radiation therapy is being considered for stage I or II disease: ◆ PET/CT (CPT® 78815 or CPT® 78816)
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 CPT® 78816)
Suspected Recurrence	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s) ◆ PET/CT can be considered in rare circumstances (e.g. bone involvement).
Surveillance of all stages of nodal marginal zone lymphoma for any of the following: ◆ After completion of active treatment ◆ On maintenance treatment ◆ Observation without any treatment	Every 6 months for two years, then annually: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s)
Surveillance of all stages of extranodal marginal zone lymphoma	Advanced imaging is not routinely indicated for surveillance of asymptomatic individuals

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ONC-27.5: Mantle Cell Lymphoma

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) If radiation therapy is being considered for stage I or II disease: ◆ PET/CT (CPT® 78815 or CPT® 78816)
Treatment Response	◆ CT with contrast of previously involved area(s) every 2 cycles of therapy ◆ PET/CT is not indicated for monitoring treatment response, but can be considered in rare circumstances when CT did not show disease (e.g. bone).
End of Therapy Evaluation	ONE of the following may be approved: ◆ CT with contrast of previously involved area(s) ◆ PET/CT (CPT® 78815 or CPT® 78816)
Suspected Recurrence	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s) ◆ PET/CT can be considered in rare circumstances (e.g. bone involvement).
Surveillance for all stages	Every 6 months for 2 years, and then annually: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s)

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ONC-27.6: Burkitt's Lymphomas

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment Response	◆ CT with contrast of previously involved area(s) every 2 cycles of therapy ◆ PET/CT is not indicated for monitoring treatment response, but can be considered in rare circumstances when CT did not show disease (e.g. bone).
End of Therapy Evaluation	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) may be approved at the end of chemotherapy 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 and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s) ◆ PET/CT can be considered in rare circumstances (e.g bone involvement).
Surveillance	Every 6 months for 2 years after completion of treatment: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)

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ONC-27.7: Lymphoblastic Lymphomas

- Individuals 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 individuals are identical to those for pediatric individuals. See: **PEDONC-3.2: Acute Lymphoblastic Leukemia (ALL)** in the Pediatric Oncology Imaging Guidelines.

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ONC-27.8: Cutaneous Lymphoma and T Cell Lymphomas

- Includes Primary Cutaneous B Cell Lymphomas, Peripheral T-Cell Lymphomas, Mycosis Fungoides/Sézary Syndrome, Anaplastic Large Cell Lymphoma, Angioimmunoblastic lymphoma, and Primary Cutaneous CD30+T Cell Lymphoproliferative Disorders

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment Response	Any ONE of the following may be approved after 3-4 cycles: ◆ PET/CT (CPT® 78815 or 78816) or ◆ CT Chest with contrast (CPT® 71260), and ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) and ◆ CT with contrast of previously involved area(s)
End of Therapy Evaluation	Any ONE of the following may be approved at the end of chemotherapy and again at the end of radiation therapy: ◆ PET/CT (CPT® 78815 or CPT® 78816) or ◆ CT Chest with contrast (CPT® 71260), and ◆ CT Abdomen and Pelvis with contrast (CPT® 74177), and ◆ 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 and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s) ◆ PET/CT can be considered in rare circumstances (e.g bone involvement).
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-27.9: Post-Transplant Lymphoproliferative Disorders

- 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. When reduction of immunosuppression is unsuccessful, these are often treated with chemoimmunotherapy similar to high grade NHL.
- This section applies to Monomorphic (B-cell type) PTLD and Polymorphic PTLD.
- For Hodgkin-lymphoma subtype of PTLD, see: **ONC-28: Hodgkin Lymphomas** for imaging recommendations.

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment Response	ANY or ALL of the following may be approved after 4 weeks of reducing immunosuppression or every 2 cycles (6-8 weeks) of chemo/immunotherapy: ◆ CT Chest with contrast (CPT® 71260), and ◆ CT Abdomen and Pelvis with contrast (CPT® 74177), and ◆ CT with contrast of previously involved area(s)
End of Therapy Evaluation	ANY one of the following may be approved at the end of treatment: ◆ PET/CT (CPT® 78815 or CPT® 78816) or ◆ CT Chest with contrast (CPT® 71260), and ◆ CT Abdomen and Pelvis with contrast (CPT® 74177), and ◆ CT with contrast of previously involved area(s)
Suspected recurrence	◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Surveillance	Advanced imaging is not routinely indicated for surveillance

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ONC-27.10: Waldenström Macroglobulinemia or Lymphoplasmacytic Lymphoma

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment Response	◆ CT with contrast of previously involved area(s) every 2 cycles of therapy
End of Therapy Evaluation	◆ 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 and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s)
Surveillance	Advanced imaging is not routinely indicated for surveillance

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ONC-28: Hodgkin Lymphoma

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ONC-28.1: Hodgkin Lymphoma – General Considerations

- Lymphoma is often suspected when individuals have any of the following:
  - Bulky lymphadenopathy (lymph node mass >5 cm in size), hepatomegaly or splenomegaly
  - The presence of systemic symptoms (fever, drenching night sweats or unintended weight loss of >10%, called "B symptoms")
- Individuals with AIDS-related lymphoma should be imaged according to the primary lymphoma histology
- The **Deauville Criteria** are internationally accepted criteria, which utilize a five-point scoring system for the FDG avidity of a Hodgkin's lymphoma or Non-Hodgkin's lymphoma tumor mass as seen on FDG PET.
  - Score 1: No uptake above the background
  - Score 2: Uptake ≤mediastinum
  - Score 3: Uptake >mediastinum but ≤liver
  - Score 4: Uptake moderately increased compared to the liver at any site
  - Score 5: Uptake markedly increased compared to the liver at any site
  - Score X: New areas of uptake unlikely to be related to lymphoma

Indication	Imaging Study
Biopsy proven lymphoma or suspected lymphoma with one of the following: ◆ Bulky lymphadenopathy (LN mass >5 cm) ◆ Hepatomegaly ◆ Splenomegaly ◆ B symptom: Unexplained fever, drenching night sweats, unintended weight loss >10% total body weight	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ■ MRI without and with contrast for individuals who cannot tolerate CT contrast due to allergy or impaired renal function
Signs or symptoms of disease involving the neck	◆ CT Neck with contrast (CPT® 70491)
Signs or symptoms suggesting CNS involvement with lymphoma	◆ MRI Brain without and with contrast (CPT® 70553) ◆ See: **ONC-2.7: CNS Lymphoma (also known as Microglioma)**
Known or suspected bone involvement with lymphoma	◆ MRI without and with contrast of symptomatic or previously involved bony areas ■ Bone scan is inferior to MRI for evaluation of known or suspected bone involvement with lymphoma
Determine a more favorable site for biopsy when a relatively inaccessible site is contemplated	◆ PET/CT (CPT® 78815 or CPT® 78816) ■ PET/CT is medically unnecessary for all other indications prior to histological confirmation of lymphoma

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ONC-28.2: Classical Hodgkin Lymphoma

- This section applies to nodular sclerosis, mixed cellularity, lymphocyte-depleted and lymphocyte-rich subtypes of Hodgkin lymphoma.

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment Response	◆ PET/CT (CPT® 78815 or CPT® 78816) as frequently as every 2 cycles
End of Chemotherapy and/or Radiation Therapy Evaluation	◆ PET/CT (CPT® 78815 or CPT® 78816) may be approved at the end of chemotherapy and again at the end of radiation (after 12 weeks of completion of radiation therapy)
Suspected Recurrence	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s)
Biopsy proven recurrence	◆ PET/CT (CPT® 78815 or CPT® 78816)
Surveillance	ANY or ALL of the following may be approved every 6 months for 2 years after completion of therapy: ◆ CT Neck with contrast (CPT® 70491) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and 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 radiation therapy if end of therapy PET/CT report documents Deauville 4 or 5 FDG avidity

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ONC-28.3: Nodular Lymphocyte – Predominant Hodgkin Lymphoma

Indication	Imaging Study
Initial Staging/Diagnosis	ANY or ALL of the following may be approved: ◆ PET/CT (CPT® 78815 or CPT® 78816) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177)
Treatment Response	◆ CT with contrast of previously involved areas as frequently as every 2 cycles
End of Chemotherapy and/or Radiation Therapy Evaluation	◆ PET/CT (CPT® 78815 or CPT® 78816) may be approved at the end of chemotherapy and again at the end of radiation (after 12 weeks of completion of radiation therapy)
Suspected Recurrence	ANY or ALL of the following may be approved: ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ CT with contrast of previously involved area(s)
Biopsy proven recurrence	◆ PET/CT (CPT® 78815 or CPT® 78816)
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	ANY or ALL of the following may be approved every 6 months for 2 years after completion of therapy: ◆ CT Neck with contrast (CPT® 70491) ◆ CT Chest with contrast (CPT® 71260) ◆ CT Abdomen and 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 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

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. The process involves delivery of high dose chemotherapy that is ablative to the bone marrow, followed by an infusion of one's own harvested stem cells.

Allogeneic HSCT results in a much greater degree of immunosuppression than autologous HSCT 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 individuals who receive allogeneic HSCT, and individuals remain at high risk for invasive infections until that has occurred.

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Pre-Transplant Imaging in HSCT:

- Pre-transplant imaging in HSCT generally takes place within 30 days prior to transplant and involves a reassessment of the individual's disease status as well as infectious disease clearance.

Indication	Imaging
Immediate pre-transplant period	◆ Chest x-ray ■ CT Chest with contrast (CPT® 71260) or CT Chest without contrast (CPT® 71250) for new findings on chest x-ray, or new/worsening signs/symptoms ◆ CT Sinus (CPT® 70486) for any clinical signs or symptoms
Assess cardiac function	◆ Echocardiogram (CPT® 93306, CPT® 93307 or CPT® 93308) ■ MUGA scan (CPT® 78472) may be indicated in specific circumstances, see: **CD-12.1: Oncologic Indications for Cancer Therapeutics-Related Cardiac Dysfunction (CTRCD)** in the Cardiac Imaging Guidelines
Assess pulmonary function	◆ Pulmonary function tests
Assess primary disease status	◆ See disease-specific guidelines for end of therapy response assessment

Post-Transplant Imaging in HSCT:

- There are many common complications from HSCT, including infection, acute and chronic graft versus host disease (GVHD), hepatic sinusoidal obstruction syndrome, restrictive lung disease, among others.

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

Indication	Imaging
Assess known or suspected HSCT complications	◆ Site-specific imaging should generally be approved
Suspected hepatic GVHD (elevated liver enzymes)	◆ Abdominal US (CPT® 76700 or CPT® 76705)
Suspected Bronchiolitis Obliterans Syndrome (BOS)	◆ CT Chest without contrast (CPT® 71250)
Assess primary disease status post-transplant	◆ See disease-specific guidelines for end of therapy evaluation and surveillance
Individuals receiving tandem auto transplants (2-4 autos back-to-back, spaced 6 to 8 weeks apart)	◆ Guideline recommended imaging can be repeated after each transplant

Reference

1. National Comprehensive Cancer Network (NCCN) Guidelines Version 3.2021 – July 26, 2021. Hematopoietic Cell Transplantation, available at: https://www.nccn.org/professionals/physician_gls/pdf/hct.pdf. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Hematopoietic Cell Transplantation V3.2021 – July 26, 2021. ©2021 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines® and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines®, go online to NCCN.org.

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

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ONC-30.1: Fever of Unknown Origin (FUO)

- 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.

Indication	Imaging Study
If physical examination, Chest X-ray, and laboratory studies are non-diagnostic	◆ Echocardiogram (CPT® 93306) ◆ Abdominal ultrasound (CPT® 76700) ◆ 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 CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ Radiopharmaceutical localization of tumor or distribution of radiopharmaceutical agent(s): CPT® 78800, 78801, or 78802, CPT® 78804, CPT® 78803 or 78831 (SPECT), or CPT® 78830, or 78832 (SPECT/CT)
"B" symptoms	◆ See: **ONC-27: Non-Hodgkin Lymphomas**
Any CNS sign/symptom accompanied by fever	◆ MRI Brain without and with contrast (CPT® 70553)
All individuals	◆ PET is not indicated in the work-up of individuals with FUO

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ONC-30.2: Unexplained Weight Loss

- Unintentional weight loss is defined as loss of ≥10 lbs. or ≥5% of body weight over 6 months or less, without an identifiable reason.

Potential causes of weight loss and initial evaluation	
Dysphagia and early satiety	◆ Endoscopy and/or barium swallow
Panhypopituitarism or hyperthyroidism	◆ Endocrine evaluation, including tests for TSH and ACTH
Hypogonadism	◆ Endocrine evaluations for gonadal function
Occult GI bleeding	◆ Serial tests for heme in stools
Depression and early dementia	◆ Detailed neurological examination

Advanced imaging, as follows, may be indicated if the initial evaluations did not identify the cause of weight loss.

Indication	Imaging Study
Any abnormality of pituitary hormones	◆ MRI Sella Turcica without and with contrast (CPT® 70553)
Elevated thyroglobulin level	◆ Nuclear thyroid scan, or ◆ Thyroid ultrasound (CPT® 76536)
Rule out renal, hepatic pathologies	◆ Abdominal ultrasound (CPT® 76700)
Rule out cardiac pathologies	◆ Echocardiogram (CPT® 93306)
For non-smokers	◆ Chest X-ray should be performed initially
For current or former smokers	◆ CT Chest with contrast (CPT® 71260)
If all of the above do not identify cause of weight loss	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
PET is **not** appropriate in the work-up of individuals with unexplained weight loss.	

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ONC-30.3: Paraneoplastic Syndromes

- Paraneoplastic syndromes are metabolic and neuromuscular disturbances. These syndromes are not directly related to a tumor or to metastatic disease. 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.
- The following are the most common symptoms of paraneoplastic syndromes known to arise from various malignancies:
  - 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
  - Elevated tumor markers
  - Cryptogenic stroke (see also: **HD-21.3**)
- See: **PN-6: Muscle Disorders** in the Peripheral Nerve Disorders Imaging Guidelines.
- See: **ONC-25: Multiple Myeloma and Plasmacytomas** for evaluation of possible multiple myeloma.

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Indication	Imaging Study
Initial evaluation	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
ANY of the following: ◆ Abnormality on conventional imaging difficult to biopsy ◆ Inconclusive conventional imaging ◆ Documented paraneoplastic antibody and conventional imaging fails to demonstrate primary site	◆ PET/CT (CPT® 78815 or CPT® 78816)
Subsequent evaluation for known paraneoplastic syndrome	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast may be repeated every 6 months for 2 years after initial imaging for Lambert-Eaton Myasthenia syndrome ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast may be repeated every 6 months for 4 years for all other paraneoplastic syndromes
Systemic mastocytosis	ANY ONE of the following: ◆ CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ MRI Abdomen (CPT® 74183) and MRI Pelvis (CPT® 72197) without and with contrast is indicated ◆ PET/CT scan is not indicated for evaluation of mastocytosis
First episode of unprovoked DVT/VTE	◆ Imaging to evaluate for malignancy is not indicated
Second unprovoked DVT/PE	◆ Imaging may be considered in the setting of a negative work-up for inherited thrombophilia and antiphospholipid syndrome
Thyroid US is recommended for elevated CEA, and upper/lower endoscopy is recommended for elevated CEA or CA 19-9.	

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

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ONC-31.0: General Guidelines

- Guideline sections **ONC-31.1: Lung Metastases** through **ONC-31.5: Bone (including Vertebral) Metastases** should only be used for individuals 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

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ONC-31.1: Lung Metastases

Indication	Imaging Study
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) ◆ 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) ◆ When primary cancer known, PET request should be reviewed by primary cancer guideline
Previous or current malignancy and pulmonary nodule(s) that would reasonably metastasize to the lungs	◆ CT Chest with contrast (CPT® 71260) at 3, 6, 12 and 24 months from the first study

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ONC-31.2: Liver Metastases

- 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.**

Indication	Imaging Study
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 (CPT® 74170) contrast
ANY of the following: ◆ Considering limited resection ◆ 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) ■ When primary cancer known, PET request should be reviewed by primary cancer guideline
Monitoring of liver metastases that have been surgically resected	◆ Review according to primary cancer guideline

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Indication	Imaging Study
Evaluation for hepatic artery chemotherapy infusion or chemoembolization with radioactive spheres (TheraSphere or SIR Spheres) for liver metastases or primary liver tumors	◆ CTA Abdomen (CPT® 74175) can be approved immediately prior to procedure ONE of the following studies may be approved PRE-treatment based upon provider preference: ◆ Liver Imaging Planar (CPT® 78201) or with liver flow (CPT® 78202) ◆ Radiopharmaceutical Localization Limited Area (CPT® 78800) ◆ Liver Imaging SPECT (CPT® 78803) ONE of the following studies may be approved POST-treatment based upon provider preference: ◆ Liver Planar Imaging (CPT® 78201) or with liver flow (CPT® 78202) ◆ Radiopharmaceutical Localization Limited Area (CPT® 78800) ◆ Liver Imaging SPECT (CPT® 78803) Please note: liver-lung shunt calculation is included in the pre-treatment Liver Scan and does not require additional Lung Perfusion Scan
Monitoring of ablated liver metastases or primary tumors	ONE of the following, immediately prior to ablation, 1 month post-ablation, then every 3 months for 2 years, and then annually ◆ CT Abdomen without and with contrast (CPT® 74170) ◆ MRI Abdomen without and with contrast (CPT® 74183)

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ONC-31.3: Brain Metastases

Indication	Imaging Study
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)
To determine candidacy for SRS, and a diagnostic thin-slice MRI Brain has not been performed in the preceding 30 days	◆ MRI Brain without and with contrast (CPT® 70553)
Stereotactic radiosurgery planning	◆ Unlisted MRI for treatment planning purposes (CPT® 76498)
Monitoring of brain metastases treated with surgery or radiation therapy	Post-treatment, then every 3 months for 1 year and every 6 months thereafter: ◆ MRI Brain without and with contrast (CPT® 70553) ***Individuals treated with stereotactic radiosurgery alone may have MRI Brain without and with contrast (CPT® 70553) every 2 months for the first year and then every 6 months thereafter
Brain metastases treated with radiation therapy, with recent MRI Brain indeterminate in distinguishing radiation necrosis vs. tumor progression	◆ MRI Perfusion imaging (CPT® 70553)
Brain metastases treated with radiation therapy, with recent MRI Brain and MR Perfusion studies both unable to distinguish radiation necrosis vs. tumor progression	◆ PET Metabolic Brain (CPT® 78608)
Any of the following: ◆ Solitary brain metastasis suspected in individual with prior diagnosis of cancer and no diagnosis-specific guideline regarding PET imaging ◆ Brain metastases and no known primary tumor	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ Mammography for female individuals ◆ PET/CT (CPT® 78815 or CPT® 78816) is indicated for ANY of the following: ▪ Inconclusive conventional imaging ▪ Confirm either stable systemic disease or absence of other metastatic disease ▪ When primary cancer known, PET request should be reviewed by primary cancer guideline
Primary brain tumors	See: **ONC-2: Primary Central Nervous System Tumors**
MR Spectroscopy (CPT® 76390) is considered investigational and experimental for evaluation of metastatic brain cancer	

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ONC-31.4: Adrenal Gland Metastases

Indication	Imaging Study
Differentiate benign adrenal adenoma from metastatic disease	◆ See: **AB-16.1: Adrenal Cortical Lesions** in the Abdomen Imaging Guidelines
Known cancer and no known systemic metastases: ◆ New adrenal mass ◆ Enlarging adrenal mass ◆ Inconclusive findings on recent CT	If not done previously, ANY of the following may be obtained: ◆ CT Abdomen without contrast (CPT® 74150) ◆ CT Abdomen without and with contrast (CPT® 74170, adrenal protocol) ◆ MRI Abdomen without contrast (CPT® 74181) ◆ MRI Abdomen without and with contrast (CPT® 74183) ◆ CT-directed needle biopsy (CPT® 77012)
One of the following and no diagnosis-specific guideline regarding PET imaging: ◆ Biopsy is not feasible or is non-diagnostic ◆ Isolated metastasis on conventional imaging and individual is a candidate for aggressive surgical management	◆ PET/CT (CPT® 78815) When primary cancer known, PET request should be reviewed by primary cancer guideline
Known extra-adrenal malignancy and undiagnosed adrenal mass being monitored off treatment	See: **ONC-1.2: Phases of Oncology Imaging and General Phase-Related Considerations**

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ONC-31.5: Bone (including Vertebral) Metastases

- Individuals 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.

Indication	Imaging Study
ANY of the following in an individual with a current or prior malignancy: ◆ Bone pain ◆ Rising tumor markers ◆ Elevated alkaline phosphatase	◆ Bone scan (see: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**) supplemented by plain x-rays is the initial diagnostic imaging study of choice
ANY of the following: ◆ Any individual 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 ◆ Suspected leptomeningeal involvement	ANY of the following may be approved: ◆ 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 ◆ CT without contrast can be approved if there is a contraindication to CT contrast
Monitoring untreated spinal metastases	◆ MRI without and with contrast or CT without and with contrast of the involved spinal level every 3 months for 1 year. **Imaging beyond 1 year is based on any new clinical signs/symptoms
Monitoring metastases within the spine treated with surgery and/or radiation therapy	◆ MRI without and with contrast or CT without and with contrast of the involved spinal level once within 3 months post treatment and then every 3 months for 1 year. **Imaging beyond 1 year is based on any new clinical signs/symptoms

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Indication	Imaging Study
Leptomeningeal involvement with cancer	On active treatment: ◆ MRI Brain without and with contrast (CPT® 70553) ◆ MRI Cervical (CPT® 72156), Thoracic (CPT® 72157), and Lumbar spine (CPT® 72158) without and with contrast every 2 cycles Once treatment completed: ◆ Routine advanced imaging not indicated for surveillance in asymptomatic individuals
Bone pain when **both** bone scan and either CT or MRI are inconclusive	◆ ^{18}F-FDG-PET/CT (CPT® 78815 or CPT® 78816) on a case-by-case basis **NOTE:** ^{18}F-NaF PET imaging (sodium fluoride, or "PET bone scan") is investigational. See: **ONC-1.4: PET Imaging in Oncology**
Suspected metastatic bone disease and negative work-up for myeloma	◆ CT Chest (CPT® 71260) and CT Abdomen and 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**

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ONC-31.6: Spinal Cord Compression

Indication	Imaging Study
ANY of the following in a current or former cancer individual: ◆ Any individual with stage IV cancer with new onset back pain ◆ New back pain persisting over two weeks ◆ Back pain that is 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	ANY or ALL of the following may be approved: ◆ MRI Cervical (CPT® 72156), MRI Thoracic (CPT® 72157), and MRI Lumbar Spine (CPT® 72158) without and with contrast ◆ Post myelogram CT Cervical (CPT® 72126), CT Thoracic (CPT® 72129), and CT Lumbar (CPT® 72132) Spine
Any current or former cancer individual with radicular symptoms suggestive of nerve root involvement but not consistent with cord compression and one of the following: ◆ Unilateral weakness ◆ Unilateral change of reflexes ◆ Pain unrelieved by change in position ◆ Age >70 years ◆ Unintentional weight loss ◆ Night pain	ONE of the following: ◆ MRI without and with contrast of involved spinal level ◆ MRI without contrast of the involved spinal level ◆ CT without contrast of the involved spinal level if MRI contraindicated

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ONC-31.7: Carcinoma of Unknown Primary Site

General Considerations

- 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 a pathologic fracture that is clearly due to metastatic neoplastic disease in an individual without a previous cancer history.
- Detailed history and physical examination including pelvic and rectal exams and laboratory tests to be performed before advanced imaging.
- Individuals 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.
- Individuals 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.

Indication	Imaging Study
Carcinoma found in a lymph node or in an organ known not to be primary	◆ CT Chest (CPT® 71260) and CT Abdomen and 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 individuals: ■ Diagnostic (not screening) mammogram and full pelvic exam ■ MRI Breasts Bilateral (CPT® 77049) 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 CT Abdomen and 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

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Indication	Imaging Study
Axillary adenocarcinoma	◆ Diagnostic (not screening) mammogram and full pelvic exam ◆ MRI Breasts Bilateral (CPT® 77049) if pathology consistent with breast primary and mammogram is inconclusive ◆ If the above are non-diagnostic for primary site: ■ CT Neck (CPT® 70491), CT Chest (CPT® 71260), and CT Abdomen (CPT® 74160) with contrast ■ CT with contrast or MRI without and with contrast of any other symptomatic site
Carcinoma found within a bone lesion	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis with contrast (CPT® 74177) ◆ Bone Scan (see: **ONC-1.3**) ◆ CT with contrast or MRI without and with contrast of any symptomatic site
ANY of the following: ◆ Above studies have failed to demonstrate site of primary ◆ CT scans reveal isolated metastatic disease for which definitive curative therapy is planned	◆ PET/CT (CPT® 78815 or CPT® 78816)
Post-treatment surveillance	◆ Advanced imaging is not indicated for routine surveillance of asymptomatic individuals after treatment completion

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ONC-31.8: Extrathoracic Small Cell and Large Cell Neuroendocrine Tumors

All poorly-differentiated or high-grade, small cell and large cell neuroendocrine tumors arising outside the lungs or of unknown primary origin are imaged according to these guidelines.

Indication	Imaging Study
Initial staging	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast
Inconclusive findings on conventional imaging studies	◆ PET/CT (CPT® 78815)
ANY of the following: ◆ Poorly differentiated neuroendocrine cancers of the head or neck ◆ Signs or symptoms of CNS involvement	◆ MRI Brain without and with contrast (CPT® 70553)
Restaging during treatment	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) and any known sites of disease with contrast every 2 cycles
Suspected Recurrence	ANY or ALL of the following are indicated: ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ MRI Brain without and with contrast (CPT® 70553) ◆ Bone scan (See: **ONC-1.3: Nuclear Medicine (NM) Imaging in Oncology**) ◆ PET imaging is generally **not** indicated but can be considered for rare circumstances.
Surveillance	◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast every 3 months for 1 year, then every 6 months for 4 additional years and then annually

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ONC-31.9: Primary Peritoneal Mesothelioma

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

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ONC-31.10: Kaposi's Sarcoma

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

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ONC-31.11: Castleman's Disease (Unicentric and Multicentric)

Indication	Imaging Study
Initial staging	◆ Either CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast **or** PET/CT (CPT® 78815) ◆ CT Neck with contrast (CPT® 70491) if cervical or supraclavicular involvement ◆ If CT scans were utilized initially and suggested unicentric disease, and surgical resection is being considered, PET/CT (CPT® 78815) can be approved to confirm unicentric disease ◆ If unicentric disease is surgically removed, proceed to Surveillance section
Restaging: ◆ Multicentric disease or surgically unresected unicentric disease on chemotherapy	ONE of the following every 2 cycles: ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ PET/CT (CPT® 78815)
ANY of the following: ◆ Suspected recurrence ◆ Recurrent B symptoms ◆ Rising LDH/IL-6/VEGF levels	ONE of the following: ◆ CT Chest (CPT® 71260) and CT Abdomen and Pelvis (CPT® 74177) with contrast ◆ PET/CT (CPT® 78815)
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

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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}-[F^{18}] 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 of cancer types 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 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").

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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 for the detection of pre-treatment metastasis (i.e., staging) in newly diagnosed cervical cancers following conventional imaging.

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.

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4. Synopsis of Coverage of FDGPET 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. Additional details may be obtained at https://www.cms.gov/medicare/coverage/determinationprocess/downloads/petforsolidtumorsoncologicdxcodesattachment_NCD220_6_17.pdf

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 listed	Cover	Cover

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Invasive Breast Cancer: Nationally non-covered for initial diagnosis and/or staging of axillary lymph nodes. Nationally covered for initial staging of known or suspected metastatic disease. All other indications for initial anti-tumor strategy for breast cancer 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: **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: **Indicated**

5. CPT codes for FDG-PET scan for Oncologic Conditions

- 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.
- Tumor imaging by Positron Emission Tomography (PET) may be reported with CPT® codes 78811-78816. CPT® codes 78811-78813 refer to PET imaging alone without localization CT scan and by itself, may not be the most appropriate study to evaluate oncologic conditions.
- A PET/CT fusion study should be reported with CPT® codes 78814-78816. CT obtained for localization should not be reported separately with PET codes.
- If a cancer-specific guideline considers a diagnostic CT scan to be medically necessary in addition to a PET/CT scan, and if this study is obtained concurrently with PET imaging on the same piece of equipment, the diagnostic CT codes may be reported separately along with CPT® codes 78811–78813. In this instance, CPT® codes 78814-78816 should not be reported along with diagnostic CT codes.
- However, if a cancer-specific guideline considers a diagnostic CT scan to be medically necessary in addition to a PET/CT scan, and these studies are obtained on separate pieces of equipment, the diagnostic CT codes may be reported separately along with CPT® codes 78814–78816.
- Additional details are available here: Medicare National Coverage Determinations Manual (https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/ncd103c1_Part4.pdf)
- CPT® 78608 (FDG Metabolic PET of the Brain) is still covered and appropriate for evaluation of CNS malignancies, and is covered under the NCD

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ONC-32.2: Oncologic Non-FDG PET

PET/CT Scan using non-FDG Radiotracers:

- Medicare National Coverage Determination for PET (NCD 220.6.17) has recently included coverage of PET-CT scans with three new non-FDG radiotracers. Local Medicare contractors have the authority to make coverage decisions about oncologic studies performed with other agents.

  Additional details are available at:

  https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/Downloads/R1755OTN.pdf

  https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/Downloads/R1753OTN.pdf

- PET/CT scan using non-FDG radiotracers is reported with the same CPT codes (CPT® 78815 and CPT® 78816)
- Either FDG or non-FDG PET/CT scan may be approved to assess the disease status, both may not be obtained simultaneously.
- Per NCD 220.6.17, one PET scan for initial treatment strategy and up to three additional PET scans for subsequent treatment strategy may be obtained regardless of the radiotracer used. Coverage of more than three 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.

^{11}C Choline, ^{18}F-Fluciclovine (AXUMIN®), ^{18}F Piflufolastat (Pylarify®), and ^{68}Ga PSMA-11 for Prostate cancer

- Covered For:
  - Subsequent treatment strategy for individuals with prostate cancer who have a rising PSA after prior treatment
- Not Covered For:
  - Initial treatment strategy for newly diagnosed prostate cancer
  - Surveillance of individuals with localized/advanced prostate cancer, who have completed definitive therapy or are receiving maintenance therapy

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^{68}Gallium DOTATATE (NETSPOT®) or ^{64}Cu-DOTATATE (DETECTNET®)

- Covered For:
  - Initial treatment strategy for newly diagnosed low-grade neuroendocrine tumors and medullary carcinoma of the thyroid
  - Subsequent treatment strategy for low-grade neuroendocrine tumors and medullary carcinoma of the thyroid
- Not Covered For:
  - Surveillance of individuals with localized/advanced low-grade neuroendocrine tumors or medullary carcinoma of the thyroid, who have completed definitive therapy or are receiving maintenance therapy

^{18}F Na Fluoride PET/CT Scan for Bone Metastases

- PET/CT using F-18 sodium fluoride (NaF-18) has been studied to identify bone metastases. At this time, Medicare NCD **excludes** coverage for PET/CT scan using Na fluoride radiotracer.

Coverage with Evidence Development (CED)

- CED is a program designed to make PET/CT 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.

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