This tool addresses common symptoms and symptom complexes. Imaging requests for patients with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician, specialist and/or patient’s Primary Care Physician (PCP) may provide additional insight.

Common symptoms and symptom complexes are addressed by this tool. Imaging requests for patients with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician may provide additional insight.

This version incorporates MSI accepted revisions prior to 7/22/11
# 2011 Pediatric and Congenital Oncology & PET Imaging Guidelines

<table>
<thead>
<tr>
<th>PACONC-1</th>
<th>General Guidelines</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACONC-2</td>
<td>Pediatric Malignancies</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Leukemia</td>
<td>4</td>
</tr>
<tr>
<td>2.2</td>
<td>Lymphomas</td>
<td>4</td>
</tr>
<tr>
<td>2.3</td>
<td>Neuroblastoma</td>
<td>5</td>
</tr>
<tr>
<td>2.4</td>
<td>Wilms’ Tumor</td>
<td>5</td>
</tr>
<tr>
<td>2.5</td>
<td>Pediatric Rhabdomyosarcoma</td>
<td>5</td>
</tr>
<tr>
<td>2.6</td>
<td>Germ Cell Tumors</td>
<td>5</td>
</tr>
<tr>
<td>2.7</td>
<td>Pediatric Central Nervous System Tumors</td>
<td>6</td>
</tr>
<tr>
<td>2.8</td>
<td>Parotid Tumors</td>
<td>6</td>
</tr>
<tr>
<td>2.9</td>
<td>Chest Wall Tumors</td>
<td>6</td>
</tr>
<tr>
<td>2.10</td>
<td>Breast Mass</td>
<td>6</td>
</tr>
<tr>
<td>2.11</td>
<td>Bone Tumors</td>
<td>6</td>
</tr>
</tbody>
</table>

## Guideline References

8
2011 PEDIATRIC AND CONGENITAL ONCOLOGY & PET IMAGING GUIDELINES

PACONC-1~GENERAL GUIDELINES

- The Oncology Imaging Guidelines are the same for both the pediatric population and the adult population, unless there are specific guidelines listed here in the Pediatric and Congenital Oncology Imaging Guidelines.
- A recent careful history and physical examination and appropriate laboratory studies should be performed prior to considering advanced imaging.
- For many pediatric tumors, adherence to adult guidelines, if applicable, is suggested.
- MedSolutions does not routinely preauthorize requests for CT or MRI scans associated with image-directed biopsy or radiation therapy treatment planning.
  - There is often no unique procedure code for a service performed only for these indications.
  - AMA instructions in CPT® state that if no specific code exists for a particular service, the service is reported with an unlisted code.
  - Imaging performed in support of radiation therapy treatment planning should be reported with the corresponding therapeutic codes (CPT®77014 for CT scans, CPT®76498 for MRI scans, CPT®78999 for PET scans), not with diagnostic imaging codes.
    - PET scans are being used for radiation therapy treatment planning, but should be coded as CPT®78999 (unlisted procedure, diagnostic nuclear medicine) and NOT as diagnostic PET scans (CPT®78812, 78815, 78816)
    - CPT®78999 does not require prior authorization by MedSolutions
  - Imaging associated with image-directed biopsy should be reported with the corresponding interventional codes (See Preface-4.2 CT-, MR-, or Ultrasound-Guided Procedures for specific CPT® codes)
- For pediatric patients suspected or confirmed to have a malignancy, Pediatric Oncology consultation without delay is strongly supported.
  - As with adult tumors, confirmation of malignancy via biopsy should proceed promptly. Excess delay in obtaining tissue confirmation of disease while awaiting imaging is frequently inappropriate.
  - Pediatric oncology patients enrolled or treated according to current Pediatric Oncology Group (POG) protocols should have imaging obtained in accordance with POG protocols.
    - Imaging obtained in accordance with such protocols should not be denied as being investigational, unless a specific investigational imaging technology is part of the protocol.
- **PET IMAGING:**
  - For patients age 13 and over, the skull base to mid-femur (“eyes-to-thighs”) procedure code for PET (CPT®78812 or CPT® 78815) is usually the most appropriate procedure to order.
When requested by a pediatric oncology referral center, CPT®78813 or CPT®78816 can be performed rather than CPT®78812 or CPT®78815.

- Exceptions for the use of CPT®78813 or CPT®78816 (whole-body protocol) include the following:
  - Malignant melanoma
  - Some unusual presentations of sarcomas and lymphomas
  - For the pre-adolescent population (under age 13), whole body PET (CPT®78813 or CPT®78816) can be performed for all PET scans used for oncologic applications.

- The guidelines listed in this section for certain specific indications are not intended to be inclusive; clinical judgment remains paramount and variance from these guidelines may be appropriate and warranted for specific clinical situations.

### PACONC-2.1 Leukemia
- While most leukemia patients do not require advanced imaging, brain MRI without and with contrast (CPT®70553) can be performed in high risk patients, patients exhibiting central nervous system (CNS) symptoms, and in patients found to have obvious positive CNS cytology.

- For Chronic Lymphocytic Leukemia (CLL)/Small Lymphocytic Lymphoma (SLL):
  - Routine imaging is not indicated for suspected cases or upon initial diagnosis.
  - Prior to initiation of therapy, CT Chest/Abdomen/Pelvis with contrast (CPT®71260 and CPT®74177) can be performed.
  - Additional CT scans to assess response to therapy are indicated only when other indicators such as change in blood counts, symptoms, or physical examination fail to give adequate information regarding response to therapy.
  - Richter’s transformation is a rare and aggressive type of leukemia that results from a transformation of CLL into diffuse large cell lymphoma.
    - Diagnosis is made based on microscopic examination of blood cells and by bone marrow biopsy.
    - PET/CT may be considered in selected cases
      - These requests should be sent for Medical Director Review
  - Use of advanced imaging is inappropriate for patients who are not undergoing therapy or under consideration for therapy.

**References:**
- [Best Practice & Research Clinical Haematology 2007;20(3):469-477](#).

### PACONC-2.2 Lymphomas
- Imaging pathways for pediatric lymphomas are similar to adults (see ONC-28 Lymphomas in the adult Oncology and PET Imaging Guidelines). Imaging after each 2 cycles of chemotherapy is generally allowed, as per protocol guidance.
  - After the initial staging imaging studies, repeat imaging studies (such as after chemotherapy cycles) should be either CT scans, with contrast, of body...
areas previously positive or PET/CT but not both—this is especially important in the pediatric population due to radiation issues.

**PACONC-2.3 Neuroblastoma**

- Abdominal and pelvic CT or MRI, contrast as requested, with chest x-ray is indicated for the initial evaluation of any child less than age 5 with a palpable abdominal mass. Neuroblastoma should be in the differential diagnosis for young children who present with adrenal tumors.
  - Follow-up chest CT or MRI, contrast as requested, can be performed for any abnormality seen on the above studies.
  - Both CT and MRI may be necessary to fully evaluate patients with neuroblastoma.
  - MIBG and/or bone scan is the standard staging study to assess the possibility of skeletal disease.
  - PET (CPT®78812, 78813, 78815, or 78816) can be performed for any of the following:
    - Tumors that weakly accumulate MIBG
    - Major decision points during therapy (e.g. prior to stem cell transplantation or before surgery)
    - Evaluation of extent of disease in the chest, abdomen, and pelvis*  
      
  - MRI of skeleton or central nervous system (CNS) is not routinely indicated in the absence of signs or symptoms or strong clinical suspicion of disease in those systems.
- Re-staging studies can be repeated every 3 to 6 months post-therapy for the interval of time calculated to be (age at diagnosis in months) plus 9 months.

**PACONC-2.4 Wilms’ Tumor**

- Abdominal and pelvic CT or MRI, contrast as requested, with chest x-ray is indicated for the initial evaluation of any child less than age 5 with a palpable abdominal mass.
  - CT chest can be performed upon verification of Wilm’s tumor.
  - Brain MRI without and with contrast (CPT®70553) can be performed if the patient has the unusual variants of rhabdoid histology and clear cell sarcoma.
- Surveillance studies may be repeated every 3 to 6 months post-therapy for the interval of time calculated to be (age at diagnosis in months) plus 9 months.
  - Pelvic imaging is unnecessary for patients who have had no previous pelvic involvement.

**PACONC-2.5 Pediatric Rhabdomyosarcoma**

- Pediatric rhabdomyosarcomas: should be imaged according to current national protocol guidance.
  - Ultrasound is generally performed initially, followed by CT.
- Adult Guidelines, **ONC-13~Sarcoma** and **ONC-19~Bladder Cancer** do **not** apply.

**PACONC-2.6 Germ Cell Tumors**

- See **ONC-21 Testicular and Nonepithelial Ovarian (Germ Cell) Cancer** in the adult Oncology and PET Imaging Guidelines.
• **PACONC-2.7 Pediatric Central Nervous System Tumors**
  o See **PACHD-12 Neuro-Oncology Brain Tumors** in the Pediatric and Congenital Head Imaging Guidelines.

• **PACONC-2.8 Parotid Tumors**
  o **Parotid tumors:** In children, 75% of parotid masses are benign
    ➢ Pleomorphic adenoma and mucoepidermoid cancer are the most common tumors.
    ➢ Ultrasound (CPT®76536) should be used for initial evaluation.
    ➢ Neck MRI without and with contrast (CPT®70543) can be performed if further evaluation is necessary.

• **PACONC-2.9 Chest Wall Tumors**
  o Ewing’s sarcoma is high on the differential diagnosis.
  o Chest MRI (CPT®71552) and chest CT (CPT®71260) may both be indicated to evaluate the chest wall and rule out lung metastases.

• **PACONC-2.10 Breast Mass**
  o Chest x-ray, ultrasound (CPT®76645), and chest CT (either CPT®71250 or CPT®71260) can be performed to evaluate a breast mass in the pediatric population, since malignancies such as lymphoma or rhabdomyosarcoma will need to be ruled out.

• **PACONC-2.11 Bone Tumors**
  o Includes Osteogenic Sarcoma, Chondrosarcoma, and Ewing’s sarcoma
  o **Initial diagnosis and staging work-up:**
    ➢ CT and/or MRI, without and with contrast, of the affected area
    ➢ Chest CT with or without contrast (CPT®71260 or CPT®71250)
    ➢ PET/CT (CPT®78815 or CPT®78816) is helpful but not required.
    ➢ Nuclear Bone scan and/or a screening MRI of the spine may be reasonable substitutes for MRI
      ▪ Sagittal MRI of the spinal cord with phased array detector coil (CPT®72156 or CPT®72157) OR full MRI of the cervical (CPT®72156) and thoracic spine (CPT®72157) can be performed to visualize the entire spinal cord.
    ➢ Imaging of the abdomen and pelvis is usually not needed but can be considered on a case by case basis.
    ➢ Head imaging is usually not needed unless there are specific neurological symptoms or there are abnormalities on other imaging studies that prompt the need for head imaging.
  o **Re-staging:**
    ➢ Generally, only MRI of the known tumor is required to assess response.
    ➢ At the conclusion of planned chemotherapy, and/or prior to definitive local resection, all positive prior imaging can be repeated and chest CT can be repeated.
      ▪ **EXCEPTION:** Repeat PET is not indicated for chondrosarcomas
○ **Surveillance and follow-up:**
  - Frequent local and chest imaging every 2 to 3 months, with increasing intervals between scans, until 5 years from end of therapy, and then annually thereafter for life.
  - Chest x-ray should be periodically substituted for Chest CT during surveillance.
  - Some national guidelines suggest PET is helpful for surveillance, but its role in the context of surveillance is undefined and it is generally not recommended. However, PET can be considered on a case-by-case basis.
2011 PEDIATRIC ONCOLOGY & PET GUIDELINE REFERENCES

PEDIATRIC AND CONGENITAL ONCOLOGY AND PET GUIDELINE REFERENCES

PACONC-2~Pediatric Malignancies

PACONC-2.1 Leukemia

PACONC-2.3 Neuroblastoma