PET and PET/CT Fusion Imaging (Positron Emission Tomography)

Oncologic Applications

CPT Codes – 78811 – 78816, G0219, G0252, S8085

Positron emission tomography (PET) produces thin slice images of the body that can be put together into 3 dimensional representations by detecting positron-emitting radionuclides from an imaging agent introduced into the body. Data from this kind of imaging yields metabolic or biochemical function information depending on the type of molecule tagged. In PET tumor imaging, information about the tumor is obtained which reveals its behavior compared to normal tissue or benign tumors.

Traditionally, CT and PET scans have been performed by separate machines as needed in the diagnosis and staging of disease and in monitoring the response to therapy. PET-CT Fusion Imaging has been developed that obtains both the CT and the PET images on one machine. Software takes the separate PET and CT images and overlays them to produce a hybrid image. The PET and CT images can be presented separately and in fusion form for subsequent interpretation. PET-CT Fusion Imaging is considered medically necessary where PET scanning is considered medically necessary according to the Criteria below.

NOTE: PET scans or PET/CT fusion imaging performed on a non-dedicated PET scanner or coincidence detection system (S8085) are considered investigational and experimental as they do not provide images that meet accepted standards of quality.

General Criteria:

Positron Emission Tomography (PET) is considered medically necessary for oncologic indications according to the following:

For Diagnosis, if:

1) result may assist in avoiding an invasive diagnostic procedure; or,

2) used in place of other conventional imaging studies when it’s expected that information from other studies will be insufficient for clinical management of the patient; or,

3) result will assist in determining the optimal anatomic location to perform an invasive diagnostic procedure.

NOTE: For solid tumors, a tissue diagnosis confirming carcinoma must be made prior to PET (except for solitary pulmonary nodules). PET scans following a tissue diagnosis are performed for the purpose of staging (see below) not diagnosis. Therefore, use of PET scan is considered not medically necessary for diagnosis of (list may not be all inclusive): breast cancer, cervical cancer, colorectal cancer, esophageal cancer, lymphoma, melanoma or ovarian cancer.
For Staging, if clinical management of the member would differ depending on the stage of cancer and:

1) after completion of a standard diagnostic workup, including conventional imaging (CT, MRI or Ultrasound), the stage of cancer remains in doubt; or,
2) use will replace one or more conventional imaging studies or conventional study information is expected to be insufficient for clinical management.

For Restaging immediately or shortly following a completed course of treatment, if:

1) physician suspects residual disease or a recurrence of disease; or,
2) necessary to determine the extent of a known recurrence; or,
3) the patient develops new or additional symptoms of the disease.

NOTE: Once a diagnosis has been established PET scan is considered not medically necessary to monitor tumor response to treatment when no change in treatment is being considered.

For Surveillance in patients requiring evaluation for potential recurrence, if the patient:

1) has a confirmed history of cancer; and,
2) has completed a course of treatment; and,
3) is displaying signs or symptoms of recurrence or if lab and/or imaging studies are suggestive of recurrence.

PET scans for routine screening of asymptomatic members are not considered medically necessary, regardless of the number and/or severity of risk factors applicable.

Disease Criteria: Unless indicated to the contrary below, when General Criteria (shown above) are met, a PET scan is considered medically necessary for diagnosis, staging, restaging and surveillance of the following:

Brain Cancer –

Diagnosis Codes:

191.0 – 191.9  Malignant neoplasm of brain
198.3  Secondary malignant neoplasm of brain or spinal cord

Breast Cancer –
Diagnosis Codes:

174.0 – 174.9  Malignant neoplasm of female breast
175.0 – 175.9  Malignant neoplasm of male breast
198.81        Secondary malignant neoplasm of breast
233.0         Carcinoma in situ of breast
238.3         Neoplasm of Uncertain behavior of breast
239.3         Neoplasm of breast

Pet scan is considered medically necessary when used in connection with other imaging modalities to:

1) stage patient with distant metastasis;
2) restage patients with locoregional recurrence or metastasis; or,
3) monitor tumor response to treatment in patients with locally advanced and metastatic breast cancer when a change in therapy is contemplated.

Pet scan (G0252) is not considered medically necessary for the initial diagnosis of breast cancer and staging of axillary lymph nodes.

Cervical Cancer –

Diagnosis Codes:

180.0 – 180.9  Malignant neoplasm of cervix
198.82        Secondary neoplasm of genital organs
233.1         Carcinoma in situ of cervix
233.3, 233.39 Carcinoma in situ of other female genital organ
239.5         Neoplasm of other genitourinary organs

Pet scan is medically necessary for the detection of pre-treatment metastases (staging) in patients newly diagnosed and have negative conventional imaging (CT or MRI) when General Criteria shown above are met.

Pet scan is not considered medically necessary for the initial diagnosis or restaging of cervical cancer.

Colorectal Cancer –

Diagnosis Codes:

153.0 – 153.9  Malignant neoplasm of colon
154.0 – 154.8  Malignant neoplasm of rectum, rectosigmoid junction and anus
197.5         Secondary neoplasm of large intestine and rectum
230.3 – 230.5 Carcinoma in situ of colon, rectum and anal canal
235.2         Neoplasm of stomach, intestines and rectum
238.1         Stromal tumors of digestive system
239.0         Neoplasm of digestive system

Pet scan is considered medically necessary in evaluating patients who show clinical signs or symptoms of recurrent colorectal cancer and related hepatic (liver) and/or extrahepatic metastases.
Pet scan is not considered medically necessary for the initial diagnosis of colorectal cancer as a diagnostic tissue sample is obtainable without PET localization.

**Esophageal Cancer –**

**Diagnosis Codes:**

- **150.0 – 150.9** Malignant neoplasm of esophagus
- **151.0** Malignant neoplasm of cardio-esophageal junction
- **230.1** Carcinoma in situ of esophagus
- **235.5** Neoplasm of digestive organ
- **239.0** Neoplasm of digestive system

For Staging, CT and or endoscopic ultrasound studies are the standard imaging methods to assess patients with esophageal cancer. When CT and/or endoscopic ultrasound are indeterminate or inconclusive, PET scan may be used to obtain the necessary information to determine treatment management.

Pet scan is not considered medically necessary for the initial diagnosis of esophageal cancer as a diagnostic tissue sample is obtainable without PET localization.

**Head and Neck (excluding Central Nervous System) Cancer –**

**Diagnosis Codes:**

- **140.0 – 149.9** Malignant neoplasm of lip, oral cavity and pharynx
- **160.0 – 161.9** Malignant neoplasm of nasal cavity, ear, sinus, larynx
- **162.0 – 162.2** Malignant neoplasm of trachea and main bronchus
- **170.0 – 170.1** Malignant neoplasm of skull, face and jaw bone
- **171.0** Malignant neoplasm of head, face and neck
- **173.0 – 173.4** Malignant neoplasm of skin (lip, ear and face)
- **176.2** Karposi’s sarcoma of the palate
- **190.0 – 190.9** Malignant neoplasm of the eye
- **194.1 & 194.3** Malignant neoplasm of parathyroid and pituitary gland
- **195.0** Malignant neoplasm of head, face and neck (ill defined)
- **196.0** Malignant neoplasm of lymph nodes (head, face and neck)
- **210.0 – 210.9** Benign neoplasm of lip, oral cavity and pharynx
- **212.0 – 212.1** Benign neoplasm of nasal cavity, ear, sinus, larynx
- **213.0 – 213.1** Benign neoplasm of skull, face and jaw bone
- **215.0** Other benign neoplasm head, face and neck
- **216.0 – 216.4** Benign neoplasm of skin (lip, ear and face)
- **224.0 – 224.9** Benign neoplasm of the eye
- **228.03** Hemangioma of retina
- **230.0** Carcinoma in situ lip, oral cavity, pharynx
- **231.0, 231.1** Carcinoma in situ larynx and trachea
- **231.8** Carcinoma in situ nasal cavity, sinuses
- **232.0 – 232.4** Carcinoma in situ skin (lip, ear, scalp and neck)
Head and neck cancers are a diverse set of malignancies with the majority squamous cell carcinomas. Patients may develop metastases to cervical lymph nodes while conventional forms of diagnostic imaging fail to identify the primary tumor. PET scan of the head and neck can be useful in determining the site of primary tumor to prevent the adverse effects of invasive surgical procedures (such as biopsy, neck dissection) or un-needed radiation therapy treatment.

- Pet scan is considered experimental and investigational for central nervous system cancers.

**Lung Cancer –**

**Diagnosis Codes:**

- 162.0 – 162.9 Malignant neoplasm of trachea, bronchus, and lung
- 163.0 – 163.9 Malignant neoplasm of pleura
- 164.8, 164.9 Malignant neoplasm of mediastinum
- 196.1 Secondary and malignant neoplasm of intrathoracic lymph nodes
- 197.0, 197.1 Secondary malignant neoplasm of lung and mediastinum
- 231.2 Carcinoma in situ of bronchus and lung
- 235.7, 235.8 Neoplasm of uncertain behavior of lung and mediastinum
- 239.1 Neoplasms of unspecified nature of lung
- 518.89 Other diseases of lung, not elsewhere classified

**Solitary Pulmonary Nodules -** when General Criteria (above) are met and the information from a CT scan indicates an indeterminate or possibly malignant lesion in the lung, a PET scan is considered medically necessary to determine if malignancy exists in order to plan treatment and future management.

- **Note:** A biopsy is not considered medically necessary if the PET scan is negative for malignancy. Repeat evaluation is not medically necessary within 90 days from a previous negative PET scan.

**Lymphoma –**

**Diagnosis Codes:**

- 196.0 – 196.9 Malignant neoplasm of lymph nodes
- 200. – 200.08 Reticulosarcoma of lymph nodes
- 201. – 201.08 Hodgkin’s paragranuloma of lymph nodes
**Nodular lymphoma**

- Pet scan is **not** considered medically necessary for the initial diagnosis of lymphoma as a diagnostic tissue sample is obtainable without PET localization.

**Melanoma**

- **Diagnosis Codes:**
  - 172.0 – 172.9 Malignant melanoma of skin

- Pet scan **is not** considered medically necessary for the initial diagnosis of melanoma as a diagnostic tissue sample is obtainable without PET localization.
- Pet scan (G0219) **is not** considered medically necessary for use in evaluating regional nodes in persons with melanoma.

**Occult Primary Cancer**

- **Diagnosis Codes:**
  - 199.1 Malignant neoplasm without specification of site

- Pet scan **is** considered medically necessary for staging (only), when:
  1) patient has carcinoma of unknown primary site based on tumors of indeterminate histology; and,
  2) the primary site cannot be identified by endoscopy or other imaging studies (CT, MRI); and,
  3) locoregional therapy for a single site of disease is being contemplated.

- Pet scan is considered **experimental and investigational** for diagnosis, restaging or surveillance of carcinomas with unknown primary location.

**Ovarian Cancer**

- **Diagnosis Codes:**
  - 183.0 – 183.9 Malignant neoplasm of ovary
  - 198.6 Secondary malignant neoplasm of ovary
  - 236.2 Neoplasm of ovary

- Pet scan **is** considered medically necessary for restaging (detecting recurrence) in patients previously treated and have a rising CA-125 level with negative or equivocal conventional imaging (CT or MRI) when General Criteria are met.

- Pet scan **is not** considered medically necessary for the initial diagnosis, staging and surveillance of ovarian cancer.

**Pancreatic Cancer**

- **Diagnosis Codes:**
  - 157.0 – 157.9 Malignant neoplasm of pancreas
PET scan is considered medically necessary in patients with suspected pancreatic adenocarcinoma when the results of other imaging modalities (CT, endoscopic retrograde Cholangiopancreatography (ERCP), ultrasound) are in doubt or inconclusive.

- Pancreatic PET scanning is not considered medically necessary for any other diagnoses or conditions.

**Thyroid Cancer –**

**Diagnosis Codes:**

193. Malignant neoplasm of thyroid gland
234.8 Carcinoma in situ thyroid gland
237.4 Neoplasm of thyroid gland

Methods most common to determine whether a patient has thyroid cancer are fine needle or surgical biopsy of the lump or nodule. There are also several clinical pathology tests (thyroglobulin) and whole body scans using radioactive iodine or I-131 available to determine local recurrence or metastatic disease.

Pet scan for differentiated thyroid cancer is considered medically necessary only for restaging patients previously treated by thyroidectomy and radioiodine ablation with:

1) recurrent or residual thyroid cancers of follicular cell origin (diagnoses above); and,
2) an elevated or rising serum thyroglobulin greater than 10 ng/ml; and,
3) negative I-131 whole body scan.

- Pet scan is considered experimental and investigational and not medically necessary for all other indications. There is insufficient scientific evidence documenting the efficacy of PET thyroid scanning in the clinical setting for any other application including, but not limited to:
  - evaluating cold thyroid nodules (less detectable than surrounding tissue on a CT or MRI due to low uptake of radiotracer such as I-131);
  - initial staging of post-surgical thyroid cancer of histological cell types that are poorly differentiated thyroid cancers (those known to concentrate radioactive iodine poorly);
  - restaging recurrent or residual thyroid cancer of medullary cell origin with an elevated serum calcitonin and negative standard imaging studies;
  - prognosis on patients with metastatic thyroid cancer who are at high risk of death over a 3 year period (this information is for informational purposes only and has not been demonstrated to alter member management).

**ALL Other Cancers –**

- PET scan for malignancy in other anatomic areas is considered experimental and investigational for all other uses. Scientific evidence does not demonstrate the efficacy of PET scan for other applications at this time. Examples include other diseases and malignancies including but not limited to the following cancers:
- Bladder; or,
- Central Nervous System; or,
- Endometrial; or,
- Gestational Trophoblastic Neoplasia; or,
- Hepatocellular (Liver) Hepatobiliary; or,
- Ileal Carcinoma; or,
- Langerhans Cell Histiocytosis; or,
- Leukemia; or,
- Musculoskeletal; or,
- Neuroendocrine; or,
- Paget’s Disease; or,
- Prostate – Germ Cell; or,
- Renal (Kidney); or,
- Skin Cancer; or,
- Testicular or Penile; or,
- Thymoma; or,
- Vulvar Cancer.

Please refer to sMed Policy 01029 for PET scan criteria relating to other medical conditions (Neurological, Coronary Artery Disease, etc.)

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