



UM-CDG-030 Fusion Imaging for Cancer and Noncancer

Approved By:
Director, Health Services

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10/22/2025

This Policy applies to all SECUR affiliates, associates, and subsidiaries.

Approved by Courtney Gonzales, Director of Health Services on behalf of the Utilization Management Committee.

PURPOSE

This coverage determination guideline serves to address fusion therapy for cancer and non-cancer.

For SECUR Health Plan members, National Coverage Determinations (NCD) and Local Coverage Determinations (LCD) will be applied to requests when applicable. SECUR Health Plan Coverage Determination Guidelines (CDG) will be utilized in the absence of an appropriate NCD and/or LCD.

DEFINITIONS

Positron Emission Tomography (PET) Scan: a medical imaging procedure that uses radioactive tracer to create three-dimensional images of the inside of the body.

Computed Tomography (CT) Scan: A CT scan is a painless, noninvasive diagnostic procedure that uses x-ray equipment to obtain a cross-sectional image of the body or multiple cross sectional images of the body.

Single Photon Emission Computed Tomography (SPECT): Nuclear medicine imaging technique that uses a small amount of radioactive tracer injected into the body to create three-dimensional images of organ function by detecting gamma rays emitted from the tracer, allowing practitioners to assess blood flow and chemical reactions within specific organs or tissues.

POLICY

SECUR Health Plan will follow the following guidance:

Reporting Guidelines

1. Professional and Technical Components
 - The procedure codes listed for PET scans represent the global service. Therefore, providers performing only the technical or professional component of the test should use modifier TC or 26, respectively.
2. Clinical Trial
 - FDG PET scans performed in the context of a CMS-approved practical clinical trial utilizing a specific protocol to demonstrate the utility of FDG PET in the diagnosis and treatment of disease should be reported with the Q0 modifier (number "0", not letter "O".)
3. PET and CT
 - If a PET scan is obtained and, on the same date of service, diagnostic CT scan(s) are obtained at a separate session, then both the PET scan and the CT scan(s) may be coded individually. If a PET/CT study is performed concurrently on a hybrid PET/CT scanner and an additional diagnostic CT scan is also obtained non-concurrently, it is appropriate to code the PET/CT scan and the

diagnostic CT scan(s) separately (whether the diagnostic CT scans are performed on a hybrid PET/CT scanner or on a dedicated CT scanner). To further clarify, the CT component of a PET/CT scan is for concurrently obtained CT scans for attenuation correction and localization and does not include any additional diagnostic CT studies that may be requested.

- When a diagnostic CT scan is performed concurrently with a PET scan, the appropriate PET scan and the appropriate diagnostic CT code may be reported. If a medically necessary diagnostic CT is performed non-concurrently with a PET/CT scan, either on the PET/CT scanner or on an independent CT scanner, the appropriate PET/CT procedure code and the diagnostic CT study(s) code may be reported.
4. CPT code 78609 is a non-covered service.
 5. HCPCS code A4641 is not an applicable tracer for PET scans.

Positron Emission Tomography Reference Table

CPT	Tracer/Code	Comment
78608	FDG/A9552	Covered indications: Alzheimer's disease/dementias, only when used to differentiate between Alzheimer's Disease and Fronto-temporal dementia, intractable seizures only when used as part of a pre-surgical evaluation.
78609	Not Applicable	Nationally non-covered

Note: This table is not a comprehensive listing of covered indications. Providers should refer to the applicable NCD sections for detailed information regarding covered indications for PET scans.

PET scans are covered only when performed at a PET imaging center with a PET scanner that has been approved or cleared by the FDA. When a claim is submitted, the provider is certifying this and must be able to produce a copy of this approval upon request. An official approval letter need not be submitted with the claim.

Documentation Requirements

1. All documentation must be maintained in the patient's medical record and made available SECUR Health Plan.
2. Every page of the record must be legible and include appropriate patient identification information (e.g., complete name, dates of service[s]). The documentation must include the legible signature of the physician or non-physician practitioner responsible for and providing the care to the patient.
3. The submitted medical record must support the use of the selected ICD-10-CM code(s). The submitted CPT/HCPCS code must describe the service performed.

The fusion of PET and CT imaging into a single system (PET/CT fusion) is considered medically necessary for any indication where PET scanning is considered medically necessary.

SPECT/CT Fusion Imaging

SECUR Health Plan will consider the following SPECT/CT Fusion Imaging as medical necessary:

1. Preoperative evaluation to further localize a lesion identified on planar scintigraphy or SPECT when additional anatomic information is needed to direct surgery and that information has not already been established through CT or magnetic resonance imaging (MRI).
2. Radiation therapy for planning of selective internal radiation therapy (SIRT) and/or for evaluation of

administered dose activity and distribution following radioembolization.

3. Bone imaging:
 - a) For avascular necrosis when MRI cannot be performed or is nondiagnostic in either of the following:
 - Diagnosis following negative or inconclusive radiographs, or
 - Preoperative planning for osteonecrosis with femoral head collapse
 - b) For fracture, including occult or stress fracture in any of the following:
 - Suspected spinal fracture when other imaging is nondiagnostic
 - Suspected skeletal injury in non-accidental trauma when MRI cannot be performed or is nondiagnostic
 - Suspected fracture, when MRI cannot be performed or is nondiagnostic at either the femoral neck, proximal femur, tibia, great toe sesamoid, patella, scaphoid, lunate, talus, navicular, or metatarsal base of the second and fifth digits
 - c) For bone lesions, for further characterization of indeterminate bone lesions when MRI, CT or planar scintigraphy is equivocal
 - d) Infection not otherwise specified in either of the following:
 - Diagnosis and management of osteomyelitis when MRI, CT, or planar scintigraphy is nondiagnostic
 - Evaluation of sternal wound infection or dehiscence when CT chest is nondiagnostic
 - e) Osseous metastatic disease not otherwise specified in either of the following:
 - Diagnostic workup and management when both a documented malignancy and signs and symptoms are concerning for bony metastatic disease and suspicious findings on CT, MRI, or planar bone scintigraphy require further clarification
 - To determine bone invasion prior to surgical resection of head and neck malignancies when CT, PET/CT, or MRI are nondiagnostic
 - Postoperative joint or spine pain when other imaging is nondiagnostic
 - Spondylolysis/spondylolisthesis when other imaging is nondiagnostic
4. Leukocyte scintigraphy is considered established in any of the following:
 - For diagnosis and management of osteomyelitis of the skull base or calvarium when CT, MRI, or planar scintigraphy are equivocal
 - For diagnosis
 - Management of osteomyelitis or septic arthritis at other sites when radiograph, ultrasound, or arthrocentesis is nondiagnostic or insufficient to guide treatment and when CT, MRI or planar scintigraphy is equivocal
5. Sentinel node localization when clinical evaluation is negative for nodal involvement in the following:
 - Stage I-III invasive breast cancer
 - Cervical cancer that is stage IA1 with lymphovascular invasion, IA2, IB1, or IIA1
 - Head and neck cancer when decisions are being made regarding mandibular resection
 - Melanoma that is stage IA with adverse features, IB, stage II, in transit, or locally recurrent
 - Penile cancer
 - Uterine cancer confined to the uterus
 - Vulvar cancer (T1 or T2)
6. Neuroendocrine cancer diagnostic workup and management in the following:
 - As clinically indicated for neuroblastoma or tumors of the autonomic nervous system either in suspected metastatic disease or suspected neuroblastoma or tumor of the autonomic nervous system based on CT, MRI, abnormal serum, or urine metanephrine levels
 - For pheochromocytoma/paraganglioma prior to planned I131 iobenguane treatment

7. Parathyroid/Thyroid cancer to identify tumor for surgical planning, localization of residual tissue in those with recurrent or persistent disease following surgery and surveillance for intermediate or high risk differentiated cancer 6 to 12 months after therapy has been completed
8. Pulmonary embolism when CT/CTA cannot be performed or is nondiagnostic.
9. Infection or inflammation not otherwise specified for functional, anatomic mapping
10. Back pain when all other diagnostic workup is inconclusive

SPECT/CT fusion is considered not medically necessary for any other indication other than those listed above.

For prostate cancer, MRI/Ultrasound fusion biopsy, when specific target lesion(s) is/are detected on multiparametric MRI (mpMRI) and classified as PIRADS 4 or 5, a three-dimensional rendering to generate prostate segmentation data image set for target identification on MRI/Transrectal ultrasound (TRUS) fusion biopsy is considered medically necessary when:

- The request is a standalone, subsequent request, or
- As a retrospective request

MRI/TRUS fusion biopsy for PIRADS 1-3 lesion, approval of a three-dimensional rendering will be considered on a case-by-case basis.

If there is no target lesion identified on MRI, then three-dimensional rendering and MRI/TRUS fusion biopsy is not considered medically necessary. Additionally, rendering for the TRUS component of a fusion is part of the service and will not be separately approved.

Indications for the study include anyone age 40-75 with PSA greater than or equal to 3 ng/mL or very suspicious DRE and one or more of the following high-risk features:

- African ancestry
- Germline mutation that increase the risk for prostate cancer
- Family history of first or second degree relative with prostate, male breast, colorectal, pancreatic, endometrial, or female breast cancer at age 45 or younger

Indications for the study include anyone greater than 75 and one or more of the following:

- PSA greater than or equal to 4 ng/mL
- Very suspicious DRE
- At least one negative/nondiagnostic TRUS biopsy and either rising PSA, abnormal DRE, or need for confirmatory MR/US fusion biopsy
- Transrectal ultrasound
- TRUS guided biopsy
- MRI pelvis with and without contrast or MRI pelvis without contrast if an MR/US guided fusion biopsy is planned
- MRI/US fusion biopsy
- PIRADS 4 or 5 lesion identified on recent MRI pelvis

Below are services that are excluded from coverage and considered not medically necessary:

- A. 18F-FDOPA-PET/CT scan for prognosis of brain cancer
- B. Full-body gallium Ga 68 dotatate PET/CT (full body) for evaluation of atypical meningioma
- C. Gallium-68 dotatate PET/CT for monitoring SDHB mutation (pathogenic) consistent with hereditary paraganglioma/pheochromocytoma syndrome
- D. PET/CT for monitoring recurrence of littoral cell splenic angioma
- E. PET/MRI for all indications. (Exceptions to cover PET/MRI may be made where PET/CT is unavailable)

and medical necessity criteria for FDG-PET are met)

F. PET scanning with a gamma camera for all indications

SECUR Health Plan considers PET/MRI as not medically necessary. Additionally, MRI/CT, nonconcurrent post-processing fusion, and interpretation of any imaging other than PET imaging with CT, and SPECT/MRI are considered not medically necessary.

References:

1. Abdalla EK, Stuart KE, Singal AG. Overview of treatment approaches for hepatocellular carcinoma. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2023.
2. Adam Z, Krejčí M, Pour L, et al. Different courses of recurrent or multisystem Langerhans cells histiocytosis in adults -- description of 22 cases from one centre. *Vnitr Lek.* 2010;56(6):542-556.
3. Adam Z, Reháč Z, Koukalová R, et al. Pulmonary Langerhans cell histiocytosis -- evaluation of the disease activity and treatment response using PET-CT (SUV(max) Pulmo/SUV(max) Hepar index). Description of own experience and literature review. *Vnitr Lek.* 2010;56(12):1228-1250.
4. Adams E, Asua J, Conde Olasagasti J, et al. Positron emission tomography: Experience with PET and synthesis of the evidence (INAHTA Joint Project). Boston, MA: U.S. Department of Veterans Affairs, Veterans Health Administration, Management Decision and Research Center, Technology Assessment Program (VATAP); 1999.
5. Adams E, Flynn K. Positron emission tomography: Descriptive analysis of experience with PET in VA. A systematic review update of FDG-PET as a diagnostic test in cancer and Alzheimer's disease. Technology Assessment Program Report No. 10. Boston, MA: U.S. Department of Veterans Affairs, Veterans Health Administration, Management Decision and Research Center, Technology Assessment Program (VATAP); 1998.
6. Adams HJ, Kwee TC. Prognostic value of pretransplant FDG-PET in refractory/relapsed Hodgkin lymphoma treated with autologous stem cell transplantation: Systematic review and meta-analysis. *Ann Hematol.* 2016;95(5):695-706.
7. Adams HJ, Nievelstein RA, Kwee TC. Prognostic value of interim and end-of-treatment FDG-PET in follicular lymphoma: A systematic review. *Ann Hematol.* 2016;95(1):11-18.
8. Advanced Accelerator Applications USA, Inc. Locametz (kit for preparation of gallium Ga 68 gozetotide injection), for intravenous use. Prescribing Information. Millburn, NJ: Advanced Accelerator Applications, USA; revised March 2022.
9. Advanced Accelerator Applications USA. Netspot (kit for the preparation of gallium Ga 68 dotatate injection), for intravenous use. Prescribing Information. Reference ID: 3939719. New York, NY: Advanced Accelerator Applications USA; revised June 2016.
10. Agency for Health Technology Assessment in Poland (AHTAPol). Cost-effectiveness analysis of PET-CT positron emission tomography and the diagnostic technologies financed from public sources in oncological diagnostics in Poland. Health Technology Assessment Report. Warsaw, Poland: AHTAPol; 2007.
11. Agency for Healthcare Research and Quality (AHRQ). Positron emission tomography for nine cancers (bladder, brain, cervical, kidney, ovarian, pancreatic, prostate, small cell lung, testicular). Prepared by the University of Alberta Evidence-Based Practice Center for the Agency for Healthcare Research and Quality (AHRQ). Rockville, MD: AHRQ; 2008.
12. Albano D, Bosio G, Bertagna F. 18F-FDG PET/CT follow-up of Rosai-Dorfman disease. *Clinical Nuclear Medicine.* 2015;40(8):e420-e422.
13. Albert M, DeCarli C, DeKosky S, et al. and the Alzheimer's Association Neuroimaging Workgroup. The use of MRI and PET for clinical diagnosis of dementia & investigation of cognitive impairment. A Consensus Report. Chicago, IL: Alzheimer's Association; April 2004.
14. American College of Obstetricians and Gynecologists (ACOG). ACOG practice bulletin. Clinical

- management guidelines for obstetrician-gynecologists. Number 42, April 2003. Breast cancer screening. *Obstet Gynecol.* 2003;101(4):821-831.
15. American Society of Health-System Pharmacists (ASHP). Technetium Tc99m Albumin Aggregated Injection. Resolved Shortages Bulletin. Bethesda, MD: ASHP; April 20, 2014.
 16. Aoyagi S, Sato-Matsumura KC, Shimizu H. Staging and assessment of lymph node involvement by 18F-fluorodeoxyglucose-positron emission tomography in invasive extra-mammary Paget's disease. *Dermatol Surg.* 2005;31(5):595-598.
 17. Auguste P, Barton P, Hyde C, Roberts T. An economic evaluation of positron emission tomography (PET) and positron emission tomography/computed tomography (PET/CT) for the diagnosis of breast cancer recurrence. *Health Technol Assess.* 2011;15(18):1-54.
 18. Balaban EP, Mangu PB, Khorana AA, et al. Locally advanced, unresectable pancreatic cancer: American Society of Clinical Oncology Clinical Practice Guideline. *J Clin Oncol.* 2016;34(22):2654-2668.
 19. Balk E, Lau J, and the New England Medical Center Evidence-Based Practice Center. Systemic review of positron emission tomography for the follow-up of treated thyroid cancer. Technology Assessment. Prepared for the Agency for Healthcare Research and Quality, Contract No. 270-97-0019. Baltimore, MD: Center for Medicare and Medicaid Services; April 10, 2002.
 20. Bateman RJ, Eidelberg D. Testing a test for Alzheimer disease. *Neurology.* 2007;68(7):482-483.
 21. Becherer A, De Santis M, Karanikas G, et al. FDG PET is superior to CT in the prediction of viable tumour in post-chemotherapy seminoma residuals. *Eur J Radiol.* 2005;54(2):284-288.
 22. Beckers C, Jeukens X, Ribbens C, et al. (18)F-FDG PET imaging of rheumatoid knee synovitis correlates with dynamic magnetic resonance and sonographic assessments as well as with the serum level of metalloproteinase-3. *Eur J Nucl Med Mol Imaging.* 2006;33(3):275-280.
 23. Belgian Health Care Knowledge Centre (KCE). HTA positron emission tomography imaging in Belgium. KCE Reports Vol. 22B. Ref. D2005/10.273/31. Brussels, Belgium: KCE; 2005.
 24. Belhocine T. An appraisal of 18F-FDG PET imaging in post-therapy surveillance of uterine cancers: Clinical evidence and a research proposal. *Int J Gynecol Cancer.* 2003;13(2):228-233.
 25. Bentivegna E, Uzan C, Gouy S, et al. The accuracy of FDG-PET/CT in early-stage cervical and vaginal cancers. *Gynecol Obstet Fertil.* 2011;39(4):193-197.
 26. Berding G, Banati RB, Buchert R, et al; International Society for Hepatic Encephalopathy and Nitrogen Metabolism (ISHEN). Radiotracer imaging studies in hepatic encephalopathy: ISHEN practice guidelines. *Liver Int.* 2009;29(5):621-628.
 27. Berg WA, Madsen KS, Schilling K, et al. Breast cancer: Comparative effectiveness of positron emission mammography and MR imaging in presurgical planning for the ipsilateral breast. *Radiology.* 2011;258(1):59-72.
 28. Berg WA, Weinberg IN, Narayanan D, et al.; Positron Emission Mammography Working Group. High-resolution fluorodeoxyglucose positron emission tomography with compression ("positron emission mammography") is highly accurate in depicting primary breast cancer. *Breast J.* 2006;12(4):309-323.
 29. Bertagna F, Biasiotto G, Rodella R, et al. 18F-fluorodeoxyglucose positron emission tomography/computed tomography findings in a patient with human immunodeficiency virus-associated Castleman's disease and Kaposi sarcoma, disorders associated with human herpes virus 8 infection. *Jpn J Radiol.* 2010;28(3):231-224.
 30. Beyer T, Townsend DW, Blodgett TM. Dual-modality PET/CT tomography for clinical oncology. *Q J Nucl Med.* 2002;46(1):24-34.
 31. Biogen. 221AD301 phase 3 study of aducanumab (BIIB037) in early Alzheimer's disease (ENGAGE). ClinicalTrials.gov. Identifier: NCT02477800. Bethesda, MD: National Library of Medicine (NLM); updated August 14, 2020.
 32. Blankstein R, Cooper LT. Management and prognosis of cardiac sarcoidosis. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed January 2018.

33. Blankstein R, Stewart GC. Clinical manifestations and diagnosis of cardiac sarcoidosis. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed February 2018.
34. Bleeker G, Tytgat GA, Adam JA, et al. 123I-MIBG scintigraphy and 18F-FDG-PET imaging for diagnosing neuroblastoma. *Cochrane Database Syst Rev.* 2015;(9):CD009263.
35. Blockmans D, Bley T, Schmidt W. Imaging for large-vessel vasculitis. *Curr Opin Rheumatol.* 2009;21(1):19-28.
36. Boers J, de Vries EFJ, Glaudemans AWJM, et al. Application of PET tracers in molecular imaging for breast cancer. *Curr Oncol Rep.* 2020;22(8):85.
37. Bona R. Splenomegaly and other splenic disorders in adults. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2023.
38. Boruta DM 2nd, Gehrig PA, Fader AN, Olawaiye AB. Management of women with uterine papillary serous cancer: A Society of Gynecologic Oncology (SGO) review. *Gynecol Oncol.* 2009;115(1):142-153.
39. Bouchelouche K, Oehr P. Positron emission tomography and positron emission tomography / computerized tomography of urological malignancies: An update review. *J Urol.* 2008;179(1):34-45.
40. Bower M, Palfreeman A, Alfa-Wali M, et al. British HIV Association guidelines for HIV-associated malignancies 2014. *HIV Medicine.* 2014;15 (Suppl. 2): 1-92.
41. Breteler MM. Mapping out biomarkers for Alzheimer disease. *JAMA.* 2011;305(3):304-305.
42. Bristow RE, del Carmen MG, Pannu HK, et al. Clinically occult recurrent ovarian cancer: Patient selection for secondary cytoreductive surgery using combined PET/CT. *Gynecol Oncol.* 2003;90(3):519-528.
43. Calais J, Ceci F, Eiber M, et al. 18 F-fluciclovine PET-CT and 68 Ga-PSMA-11 PET-CT in patients with early biochemical recurrence after prostatectomy: A prospective, single-centre, single-arm, comparative imaging trial. *Lancet Oncol.* 2019;20(9):1286-1294.
44. Canadian Agency for Drugs and Technologies in Health (CADTH). Positron emission tomography for epilepsy: Clinical effectiveness and guidelines. Ottawa, ON: Canadian Agency for Drugs and Technologies in Health (CADTH); 2010.
45. Canadian Coordinating Office for Health Technology Assessment (CCOHTA). PET scanner update. *Health Technology Update.* Ottawa, ON: CCOHTA; Fall 2005.
46. Carlsen EA, Johnbeck CB, Binderup T, et al. 64Cu-DOTATATE PET/CT and prediction of overall and progression-free survival in patients with neuroendocrine neoplasms. *J Nucl Med.* 2020;61(10):1491-1497.
47. Caviness JN. Symptomatic (secondary) myoclonus. UpToDate [online serial]. Waltham, MA: UpToDate; updated September 2012.
48. Ceci F, Herrmann K, Castellucci P, et al. Impact of 11C-choline PET/CT on clinical decision making in recurrent prostate cancer: Results from a retrospective two-centre trial. *Eur J Nucl Med Mol Imaging.* 2014;41(12):2222-2231.
49. Center for Medicare & Medicaid Services (CMS). Decision memo for positron emission tomography (FDG) for brain, cervical, ovarian, pancreatic, small cell lung, and testicular cancers (CAG-00181N). *Medicare Coverage Database.* Baltimore, MD: CMS; January 28, 2005.
50. Center for Medicare & Medicaid Services (CMS). FDG Positron Emission Tomography (PET) Decision Memorandum #CAG-00065. Baltimore, MD: CMS; December 15, 2000.
51. Center for Medicare & Medicaid Services (CMS). FDG positron emission tomography - breast cancer. Decision Memorandum. #CAG-00094A. Baltimore, MD: CMS; February 27, 2002.
52. Center for Medicare & Medicaid Services (CMS). FDG positron emission tomography for myocardial viability. Decision Memorandum #CAG-00098N. Baltimore, MD: CMS; February 20, 2002. .
53. Center for Medicare & Medicaid Services (CMS). Positron emission tomography (PET or PETT). *Medicare Coverage Issues Manual Sec. 50-36.* Baltimore, MD: CMS; 2000.
54. Center for Medicare & Medicaid Services (CMS). Positron emission tomography (PET) scanner technology. Decision Memorandum #CAG-00090A. Baltimore, MD: CMS; June 29, 2001.
55. Center for Medicare & Medicaid Services (CMS). Positron emission tomography (FDG) for soft tissue

- sarcoma (STS). Decision Memorandum #CAG-00099N. Baltimore, MD: CMS; April 16, 2003.
56. Center for Medicare & Medicaid Services (CMS). Positron emission tomography (FDG) for Alzheimer's disease/dementia. Decision Memorandum #CAG-00088N. Baltimore, MD: CMS; April 16, 2003.
 57. Center for Medicare & Medicaid Services (CMS). Positron emission tomography (N-13 Ammonia) for myocardial perfusion. Decision Memorandum #CAG-00165N. Baltimore, MD: CMS; April 16, 2003.
 58. Center for Medicare & Medicaid Services (CMS). Positron emission tomography (FDG) and other neuroimaging devices for suspected dementia. Decision Memorandum #CAG-00088R. Baltimore, MD: CMS; September 16, 2004.
 59. Centers for Medicare & Medicaid Services (CMS). Decision Memo for Positron Emission Tomography (NaF-18) to Identify Bone Metastasis of Cancer (CAG-00065R). Baltimore, MD: CMS; February 26, 2010.
 60. Centers for Medicare & Medicaid Services (CMS). Decision memo for positron emission tomography (FDG) for infection and inflammation (CAG-00382N). Medicare Coverage Database. Baltimore, MD: Centers for Medicare & Medicaid Services; March 19, 2008.
 61. Ceresoli GL, Chiti A, Zucali PA, et al. Assessment of tumor response in malignant pleural mesothelioma. *Cancer Treat Rev.* 2007;33(6):533-541.
 62. Chang TC, Yen TC, Li YT, et al. The role of 18F-fluorodeoxyglucose positron emission tomography in gestational trophoblastic tumours: A pilot study. *Eur J Nucl Med Mol Imaging.* 2006;33(2):156-163.
 63. Chang WC, Hung YC, Kao CH, et al. Usefulness of whole body positron emission tomography (PET) with 18F-fluoro-2-deoxyglucose (FDG) to detect recurrent ovarian cancer based on asymptotically elevated serum levels of tumor marker. *Neoplasma.* 2002;49(5):329-333.
 64. Charidimou A, Farid K, Baron JC. Amyloid-PET in sporadic cerebral amyloid angiopathy: A diagnostic accuracy meta-analysis. *Neurology.* 2017 Oct 3;89(14):1490-1498.
 65. Chen YK, Yeh CL, Tsui CC, et al. F-18 FDG PET for evaluation of bone marrow involvement in non-Hodgkin lymphoma: a meta-analysis. *Clin Nucl Med.* 2011;36(7):553-559.
 66. Chiaravalloti A, Esposito V, Ursini F, et al. Overall survival and progression-free survival in patients with primary brain tumors after treatment: Is the outcome of [18F] FDOPA PET a prognostic factor in these patients? *Ann Nucl Med.* 2019;33(7):471-480.
 67. Chittiboina P, Montgomery BK, Millo C, et al. High-resolution(18)F-fluorodeoxyglucose positron emission tomography and magnetic resonance imaging for pituitary adenoma detection in Cushing disease. *J Neurosurg.* 2015;122(4):791-797.
 68. Cho SM, Ha HK, Byun JY, et al. Usefulness of FDG PET for assessment of early recurrent epithelial ovarian cancer. *AJR Am J Roentgenol.* 2002;179(2):391-395.
 69. Chou R, Pappas M, Miller L. Systemic review: Somatostatin imaging for neuroendocrine tumors. Evidence Synthesis - Rapid Review. Prepared by the Pacific Northwest Evidence-based Practice Center for the Society for Nuclear Medicine and Medical Imaging (SNMMI). Reston, VA: SNMMI; May 2017.
 70. Cicone F, Carideo L, Scaringi C, et al. 18F-DOPA uptake does not correlate with IDH mutation status and 1p/19q co-deletion in glioma. *Ann Nucl Med.* 2019;33(4):295-302.
 71. Danish Centre for Evaluation and Health Technology Assessment (DACEHTA). Positron emission tomography (PET) with 18-F-fluorodeoxyglucose (FDG): A survey of the literature with regard to evidence for clinical use in oncology, cardiology and neurology. Copenhagen, Denmark: DACEHTA; 2001.
 72. Danish Centre for Evaluation, Health Technology Assessment (DACEHTA). Paper concerning clinical PET-scanning using FDG - with focus on diagnosis of cancer. Copenhagen, Denmark: DACEHTA; 2001.
 73. De Santis M, Bokemeyer C, Becherer A, et al. Predictive impact of 2-18fluoro-2-deoxy-D-glucose positron emission tomography for residual postchemotherapy masses in patients with bulky seminoma. *J Clin Oncol.* 2001;19(17):3740-3744.
 74. Dehn TG. PET scan codes and coverage. A discussion 'white paper' prepared for NIA clients. Hackensack,

- NJ: National Imaging Associates, Inc. (NIA); February 2005.
75. Francis RJ, Byrne MJ, van der Schaaf AA, et al. Early prediction of response to chemotherapy and survival in malignant pleural mesothelioma using a novel semiautomated 3-dimensional volume-based analysis of serial 18F-FDG PET scans. *J Nucl Med.* 2007;48(9):1449-1458.
 76. Funauchi M, Ikoma S, Kishimoto K, et al. A case of adult onset Still's disease showing marked accumulation in the liver and spleen, on positron emission tomography-CT images. *Rheumatol Int.* 2008;28(10):1061-1064.
 77. Ganjoo KN, Chan RJ, Sharma M, Einhorn LH. Positron emission tomography scans in the evaluation of postchemotherapy residual masses in patients with seminoma. *J Clin Oncol.* 1999;17(11):3457-3460.
 78. Garcia-Carbonero R, Teresa FM, Mercader-Cidoncha E, et al. Multidisciplinary practice guidelines for the diagnosis, genetic counseling and treatment of pheochromocytomas and paragangliomas. *Clin Transl Oncol.* 2021;23(10):1995-2019.
 79. Isal S, Gauchotte G, Rech F, et al. A high 18F-FDOPA uptake is associated with a slow growth rate in diffuse Grade II-III gliomas. *Br J Radiol.* 2018;91(1084):20170803.
 80. Israel GM, Francis IR, Roach M III, Anscher et al; Expert Panel on Urologic Imaging and Radiation Oncology-Prostate. Pretreatment staging prostate cancer. [online publication]. Reston, VA: American College of Radiology (ACR); 2007.
 81. Ito S, Yokoyama J, Yoshimoto H, et al. Usefulness of choline-PET for the detection of residual hemangiopericytoma in the skull base: Comparison with FDG-PET. *Head Face Med.* 2012;8:3.
 82. Katzenellenbogen JA. PET Imaging Agents (FES, FFNP, and FDHT) for estrogen, androgen, and progesterone receptors to improve management of breast and prostate cancers by functional imaging. *Cancers (Basel).* 2020;12(8):2020.
 83. Kauffman CA. Diagnosis and treatment of disseminated histoplasmosis in HIV-uninfected patients. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2023.
 84. Kawano S, Kato J, Kawano N, et al. Sarcoidosis manifesting as cardiac sarcoidosis and massive splenomegaly. *Intern Med.* 2012;51(1):65-69.
 85. Lynch DF. Carcinoma of the penis: Diagnosis, treatment, and prognosis. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed September 2012.
 86. Malagolowkin M. Overview of hepatoblastoma. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed December 2023.
 87. Mann GN, Link JM, Pham P, et al. [11C]methoxyphenethylamine and [18F]fluorodeoxyglucose positron emission tomography improve clinical decision making in suspected pheochromocytoma. *Ann Surg Oncol.* 2006;13(2):187-197.
 88. Manthey N, Reinhard P, Moog F, et al. The use of [18 F]fluorodeoxyglucose positron emission tomography to differentiate between synovitis, loosening and infection of hip and knee prostheses. *Nucl Med Commun.* 2002;23(7):645-653.
 89. National Comprehensive Cancer Network (NCCN). Central nervous system cancers. NCCN Clinical Practice Guidelines in Oncology, Version 1.2017. Fort Washington, PA: NCCN; 2017.
 90. National Institutes of Health (NIH), National Institute on Aging (NIA). Neuroimaging in the diagnosis of Alzheimer's disease and dementia. Expert panel convened by the Neuroscience and Neuropsychology of Aging Program, National Institute on Aging (NIA), Department of Health and Human Services (DHHS). Bethesda, MD: NIH; April 5, 2004.
 91. National Institute for Health and Care Excellence (NICE). Parkinson's disease in adults: Diagnosis and management. NICE Guideline NG71. London, UK: NICE; July 2017.
 92. Ng VY. Solitary fibrous tumor workup. New York, NY: eMedicine; March 4, 2015. Available at: <http://emedicine.medscape.com/>. Accessed October 12, 2016.
 93. Ngo V, Martineau P, Harel F, et al. Improving detection of CAD and prognosis with PET/CT quantitative absolute myocardial blood flow measurements. *Curr Cardiol Rep.* 2022;24(12):1855-1864.

94. Podoloff DA, Ball DW, Ben-Josef E, et al. NCCN task force: Clinical utility of PET in a variety of tumor types. *J Natl Compr Canc Netw*. 2009;7 Suppl 2:S1-S26.
95. Pritchard KI, Julian JA, Holloway CM, et al. Prospective study of 2-[¹⁸F]fluorodeoxyglucose positron emission tomography in the assessment of regional nodal spread of disease in patients with breast cancer: An Ontario clinical oncology group study. *J Clin Oncol*. 2012;30(12):1274-1279.
96. Rufini V, Calcagni ML, Baum RP. Imaging of neuroendocrine tumors. *Semin Nucl Med*. 2006;36(3):228-247.
97. Ryan CW, Meyer J. Clinical presentation, histopathology, diagnostic evaluation, and staging of soft tissue sarcoma. UpToDate [online serial]. Waltham, MA: UpToDate; updated September 2012.
98. Sadeghi R, Zakavi SR, Hasanzadeh M, et al. Diagnostic performance of fluorine-18-fluorodeoxyglucose positron emission tomography imaging in uterine sarcomas: Systematic review and meta-analysis of the literature. *Int J Gynecol Cancer*. 2013;23(8):1349-1356.
99. Salsano E, Marotta G, Manfredi V, et al. Brain fluorodeoxyglucose PET in adrenoleukodystrophy. *Neurology*. 2014;83(11):981-989.
100. Thomas DM, Desai J. Giant cell tumor of bone. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed November 2015.
101. Tian M, Civelek AC, Carrio I, et al. International consensus on the use of tau PET imaging agent 18F-flortaucipir in Alzheimer's disease. *Eur J Nucl Med Mol Imaging*. 2022;49(3):895-904.
102. Yeo JM, Waddell B, Khan Z, Pal S. A systematic review and meta-analysis of (18)F-labeled amyloid imaging in Alzheimer's disease. *Alzheimers Dement (Amst)*. 2015;1(1):5-13.
103. Zahid I, Sharif S, Routledge T, Scarci M. What is the best way to diagnose and stage malignant pleural mesothelioma? *Interact Cardiovasc Thorac Surg*. 2011;12(2):254-259.
104. Billing and Coding Article A53134, Billing and Coding: NCD Coding Article for Positron Emission Tomography (PET) Scans Used for Non-Oncologic Conditions
<https://www.cms.gov/medicare-coverage-database/view/article.aspx?articleId=53134>
105. Billing and Coding Article, Local Coverage Determination (LCD) Article, A59318, Billing and Coding: Positron Emission Tomography (PET) Scan for Inflammation and Infection
<https://www.cms.gov/medicare-coverage-database/view/article.aspx?articleId=59318&ver=12>