



Subject: Single Photon Emission Computed Tomography (SPECT)*

Effective Date: February 27, 2007

Department(s): Utilization Management

Policy: SPECT is reimbursable under Plans administered by QualCare, Inc, when performed for indications in this policy.

Objective: To assure proper and consistent reimbursement and to delineate indications for a specific imaging modality.

Procedure:

A. The following are indications for which SPECT is reimbursable under Plans administered by QualCare, Inc.:

1. Cardiac Conditions

- A. New, recurrent or worsening cardiac symptoms and ANY of the following:
- High pre-test probability of coronary artery disease (Men age 40-59 with typical/definite angina pectoris; men and women age 60 and over with typical/definite angina pectoris)
 - History of CAD by prior anatomic evaluation of the

coronary arteries or coronary artery bypass/percutaneous coronary intervention

- Evidence or high suspicion of ventricular tachycardia
- Age \geq 50 years with known diabetes mellitus
- Coronary artery calcium score
- Electrocardiogram is uninterpretable for ischemia (including complete left bundle branch block, ventricular paced rhythm, WPW, baseline ST segment depression $>$ 0.5mm, LVH with strain pattern, baseline inferior or lateral T wave inversion, individual is on digitalis)
- Continued symptoms with a prior normal or submaximal exercise treadmill test and CAD remains a concern
- A recent equivocal, borderline, or abnormal stress test and CAD remains a concern
- Heart rate $<$ 50 on beta-blocker or calcium channel blocker therapy and it is assessed that an adequate workload for a diagnostic exercise stress test will not be achieved
- Inadequate exercise stress test due to physical inability to achieve a maximum exercise workload or a suspected false positive exercise stress test (abnormal but does not appear to be due to macrovascular CAD)

- B. To evaluate for inducible ischemia within 3 months of an acute coronary event in the absence of chest pain or heart failure and any prior coronary angiography or imaging stress test for the current episode.
- C. Assessment of myocardial viability (hibernating myocardium with left ventricular dysfunction) prior to referral for myocardial revascularization procedures.
- D. Unheralded syncope (NOT near syncope)
- E. Asymptomatic individual with an uninterpretable ECG that has never been evaluated or is a new uninterpretable change.
- F. Individual with an elevated cardiac troponin.
- G. One routine study 2 years or more after a stent, except with a left main stent where it can be done at 1 year.
- H. One routine study at 5 years or more after CABG, without cardiac symptoms.
- I. Every 2 years if there was documentation of previous “silent ischemia” on the imaging portion of a stress test but not on the ECG portion.
- J. To assess for CAD in an individual taking flecainide or propafenone.
- K. Prior anatomic imaging study (coronary angiogram or CCTA) demonstrating coronary stenosis in a major coronary branch that is of uncertain functional significance .

L. Evaluating new, recurrent or worsening left ventricular dysfunction/CHF

II. Non-cardiac Conditions

- a. Assessment of hepatic hemangioma(s)
- b. In patients with seizure disorder, as an alternative to PET scanning in presurgical detection of seizure focus
- c. Distinction of bone infection from soft tissue infection
- d. Differentiation, in bone lesions, among infection, neoplasm, vascular insufficiency or trauma
- e. Abscess localization
- f. Differentiation of necrotic or radiation-injured or inflammatory tissue from brain neoplasm
- g. Differentiation of necrotic tissue from lymphoma
- h. Initial staging and assessment of response of lymphoma to chemotherapy
- i. Diagnosis and staging of neuroendocrine tumors
- j. Parathyroid imaging
- k. Diagnosis of pulmonary embolism

III. For the following conditions (not an all-inclusive list), SPECT is NOT reimbursable because there is not a satisfactory body of peer-reviewed literature supporting its use:

- a. Dementia: Initial or differential diagnosis
- b. Spinal disorders other than osteomyelitis
- c. Stroke

- d. Internal carotid artery scan during temporary balloon occlusion
- e. Stress fractures
- f. Assessment of pervasive developmental disorder, including autism and ADHD
- g. Assessment of personality disorders
- h. Differentiation of Parkinson's disease from other Parkinsonian syndromes
- i. Assessment and follow-up for suspected subacute or chronic central nervous system Lyme disease
- j. Chronic fatigue syndrome
- k. Malignancies other than those listed as reimbursable
- l. Neuropsychiatric disorders without evidence of cerebrovascular disease

IV. **CPT codes covered** by this policy include the following:

- a. **78205** SPECT of liver
- b. **78206** SPECT of liver with vascular flow
- c. **78320** SPECT of bone and joint
- d. **78451** SPECT myocardial perfusion, single
- e. **78452** SPECT myocardial perfusion, multiple
- f. **78469** SPECT myocardial imaging, infarct avid, planar

- g. **78494** SPECT cardiac imaging, wall motion
- h. **78607** SPECT of brain, complete
- i. **78803** SPECT tumor distribution
- j. **78807** SPECT inflammatory process localization
- k. **87071** SPECT of parathyroids
- l. **87072** SPECT of parathyroids with acquired CT

V. **CPT codes excluded** by this policy include the following:

- a. **78647** SPECT cerebrospinal fluid flow
- b. **78710** SPECT kidney morphology

References

Treglia G, Trimboli P, Huellner M, Giovanella L. Imaging in primary hyperparathyroidism: focus on the evidence-based diagnostic performance of different methods. *Minerva Endocrinol.* 2017 Jun 23. doi: 10.23736/S0391-1977.17.02685-2. [Epub ahead of print]

Cendes F, Theodore WH, Brinkmann BH, Sulc V, Cascino GD. Neuroimaging of epilepsy. *Handb Clin Neurol.* 2016;136:985-1014

Brigo F, Turri G, Tinazzi M. 123I-FP-CIT SPECT in the differential diagnosis between dementia with Lewy bodies and other dementias. *J Neurol Sci.* 2015;359(1-2):161-71(Dec)

Archer HA, Smailagic N, John C, Holmes RB, Takwoingi Y, Coulthard EJ, Cullum S. Regional Cerebral Blood Flow Single Photon Emission Computed Tomography for detection of Frontotemporal dementia in people with suspected dementia. *Cochrane Database Syst Rev.* 2015;6:CD010896(Jun)

UpToDate-Nervous System Lyme disease, versions 15.0, updated March 24, 2015. Accessed at Uptodate.com

American College of Radiology Appropriateness Criteria®: Dementia and Movement Disorders, last review date:2014. Accessed online 11/15/15 at ACR.org

Wolk MJ, Bailey SR, Doherty JU, Douglas PS, et al. ACCF/AHA/ASE/ASNC/HFSA/HRS/SCAI/SCCT/SCMR/STS 2013 multimodality appropriate use criteria for the detection and risk assessment of stable ischemic heart disease: a report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, American Heart Association, American Society of Echocardiography, American Society of Nuclear

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Cardiology, Heart Failure Society of America, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and Society of Thoracic Surgeons. *J Am Coll Cardiol*. 2014;63(4):380-406(Feb)

Broski SM, Hunt CH, Johnson GB, Morreale RF, Lowe VJ, Peller PJ. Structural and functional imaging in parkinsonian syndromes. *Radiographics*. 2014;34(5):1273-92(Sep-Oct)

Torosyan N, Silverman DH. Neuronuclear imaging in the evaluation of dementia and mild decline in cognition. *Semin Nucl med*. 2012;42(6):415-22(Nov)

American College of Radiology Appropriateness Criteria®: Dementia and Movement Disorders, last review date:2010. Accessed online 11/29/12 at ACR.org

Miles S, Rogers KM, Thomas P, et al. A comparison of single-photon emission CT lung scintigraphy and CT pulmonary angiography for the diagnosis of pulmonary embolism. *Chest*. 2009;136(6):1546-1553

Bajc M, Neilly JB, Miniati M, et al; EANM Committee. EANM guidelines for ventilation/perfusion scintigraphy: Part 1. Pulmonary imaging with ventilation/perfusion single photon emission tomography. *Eur J Nucl Med Mol Imaging*. 2009a;36(8):1356-1370

Bajc M, Neilly JB, Miniati M, et al. EANM guidelines for ventilation/perfusion scintigraphy: Part 2. Algorithms and clinical considerations for diagnosis of pulmonary emboli with V/P(SPECT) and MDCT. *Eur J Nucl Med Mol Imaging*. 2009b;36(9):1528-1538

Gutte H, Mortensen J, Jensen CV, et al. Comparison of V/Q SPECT and planar V/Q lung scintigraphy in diagnosing acute pulmonary embolism. *Nucl Med Commun*. 2010;31(1):82-86.

Soman P, Udelson JE. Assessment of myocardial viability by nuclear imaging in coronary heart disease. *UpToDate* version 14.3.
<http://www.utdol.com/utd/content/topic.do?topicKey=17261&view> May 19, 2006 accessed 01/21/07

Pineda C, Vargas A, Vargas Rodriguez A. Imaging of Osteomyelitis: Current Concepts. *Infect Dis Clin N Amer* 2006;20(4):789-825 (Dec)

Broderick DF. Neuroimaging in Neuropsychiatry. *Psychiatr Clin N Amer* 2005;28(3):549-566.

Fitzsimminos A, Upchurch K, Batchelor T. Clinical features and diagnosis of primary central nervous system lymphoma. *Hematol Oncol Clin N Amer* 2005;19(4):689-703 (Aug)

Ueda T, Yuh WT. Single-photon emission CT imaging in acute stroke. *Neuroimaging Clin N Amer* 2005;15(3):543-551 (Aug)

Foy AJ, Studdiford J. Lyme Disease. *Clin Fam Prac* 2005;7(2):191-208 (Jun)

Mullan BP. Nuclear medicine imaging of the parathyroid. *Otolaryngol Clin N Am* 2004;37(4):909-939 (Aug)

Cascino GD, So EL, Buchhalter JR, *et al.* The current place of single photon emission computed tomography in epilepsy evaluations. *Neuroimaging Clin N Amer* 2004;14(3):553-561 (Aug)

Crean A, Dutka D, Coulden R. Cardiac imaging using nuclear medicine and positron emission tomography. *Radiol Clin N Amer* 2004;42(3):619-634 (May)

Lee JY, Adelson PD. Neurosurgical management of pediatric epilepsy. *Pediatr Clin N Amer* 2004;51(2):441-456 (Apr)

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*Consistent with Summary Plan Description (SPD). When there is discordance between this policy and the SPD, the provisions of the SPD prevail.