

	<p><b>SPECT Scan Guidelines</b></p>	
<p><b>Guideline #</b> 6201</p>	<p><b>Categories</b> Clinical → Care Management CM, TCHP Guidelines, Utilization Management UM</p>	<p><b>This Guideline Applies To:</b> Texas Children's Health Plan</p>
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**GUIDELINE STATEMENT:**

Texas Children's Health Plan (TCHP) performs authorization of all SPECT scans.

**DEFINITIONS:**

- Single photon emission computed tomography (SPECT) provides three-dimensional images of the concentration of a radiopharmaceutical within various tissues and organs, and is an established imaging modality for a number of different indications.

**PRIOR AUTHORIZATION GUIDELINES**

1. All requests for prior authorization for SPECT scans are received via online submission, fax, phone or mail by the Utilization Management Department and processed during normal business hours.
2. The Utilization Management professional receiving the request evaluates the submitted information to determine if the documentation supports the SPECT scan request as an eligible service.
3. To request prior authorization for SPECT scan, the following documentation must be provided:
  - 3.1. Diagnosis
  - 3.2. Treatment history
  - 3.3. Treatment plan
  - 3.4. Medications that the member is currently taking
  - 3.5. Previous imaging results
  - 3.6. Signed physician order for the ordered test
4. SPECT scan is considered medically necessary in the following situations:
  - 4.1. Cardiac
    - 4.1.1. Assessing myocardial viability before referral for myocardial revascularization procedures; *or*
    - 4.1.2. Diagnosis of coronary artery disease (CAD) in members with an uninterpretable resting electrocardiogram (ECG) and restricted exercise tolerance.
  - 4.2. Non-Cardiac

- 4.2.1. Bone and joint conditions—to differentiate between infectious, neoplastic, avascular or a traumatic process.
  - 4.2.2. Brain tumors—to differentiate between lymphomas and infections such as toxoplasmosis particularly in the immunosuppressed, or recurrent tumor vs. radiation changes, when PET is not available.
  - 4.2.3. Liver hemangioma—using labeled red blood cells to further define lesions identified by other imaging modalities.
  - 4.2.4. Localization of abscess/infection/inflammation in soft tissues or cases of fever of unknown origin.
  - 4.2.5. Neuroendocrine tumors (e.g., adenomas, carcinoid, pheochromocytomas, neuroblastoma, vasoactive intestinal peptide [VIP] secreting tumors, thyroid carcinoma, adrenal gland tumors)—using a monoclonal antibody (OctreoScan™ [Covidien, Hazelwood, MO]) or I-131 meta-iodobenzyl-guanidine (MIBG).
  - 4.2.6. Parathyroid imaging.
  - 4.2.7. Renal - Dimercaptosuccinic acid (DMSA) scan to assess the status of kidney for scarring and function.
  - 4.2.8. Diagnosing pulmonary embolism (by means of SPECT ventilation/perfusion scintigraphy);
  - 4.2.9. Distinguishing Parkinson's disease from essential tremor
  - 4.2.10. Lymphoma, to distinguish tumor from necrosis
  - 4.2.11. Pre-surgical ictal detection of seizure focus in members with epilepsy (in place of positron emission tomography (PET)).
5. SPECT scans are considered ***not medically necessary*** for the evaluation or management of cerebrovascular accident (CVA, stroke), subarachnoid hemorrhage, or transient ischemic attack.
6. SPECT is considered ***experimental/investigational and not medically necessary*** for all other non-cardiac indications, including *any* of the following, because its diagnostic value has not been established in the peer-reviewed medical literature in these situations
- 6.1. Diagnosis or assessment of members with attention deficit/hyperactivity disorder: *or*
  - 6.2. Diagnosis or assessment of members with autism; *or*
  - 6.3. Diagnosis or assessment of members with personality disorders (e.g., aggressive and violent behaviors, anti-social personality disorder including psychopathy, schizotypal personality disorder, as well as borderline personality disorder); *or*
  - 6.4. Diagnosis or assessment of members with schizophrenia; *or*
  - 6.5. Diagnosis or assessment of stroke members; *or*
  - 6.6. Differential diagnosis of Parkinson's disease from other Parkinsonian syndromes; *or*
  - 6.7. Evaluation of members with endoleak; *or*
  - 6.8. Evaluation of members with generalized pain or insomnia; *or*
  - 6.9. Evaluation of members with head trauma; *or*
  - 6.10. Initial or differential diagnosis of members with suspected dementia (e.g., Alzheimer's disease, dementia with Lewy bodies, frontotemporal dementia, and vascular dementia); *or*
  - 6.11. Multiple sclerosis; *or*
  - 6.12. Evaluation and diagnosis of members with Chronic Fatigue syndrome

- 6.13. Colorectal carcinoma (e.g., used with the monoclonal antibody or IMMU-4 and CEA-Scan®[Immunomedics Inc., Morris Plains, New Jersey]).
  - 6.14. Dopamine transporter (DaT) scan for all indications.
  - 6.15. Malignancies other than those listed as medically necessary.
  - 6.16. Neuropsychiatric disorders without evidence of cerebrovascular disease.
  - 6.17. Pervasive development disorders (PDD).
  - 6.18. Prostate carcinoma (e.g., used with the monoclonal antibody ProstaScint® [EUSA Pharma, Langhorne, PA], with or without fusion imaging with computed tomography or magnetic resonance imaging).
  - 6.19. Scintimammography for breast cancer.
  - 6.20. Pre-surgical evaluation of members undergoing lung volume reduction surgery; *or*
  - 6.21. Prosthetic graft infection; *or*
  - 6.22. Scanning of internal carotid artery during temporary balloon occlusion; *or*
  - 6.23. Vasculitis.
7. SPECT is considered ***experimental/investigational and not medically necessary*** for the following indications for which the study is considered “inappropriate” according to appropriateness criteria from the American College of Cardiology (ACC) (Brindis et al, 2005):
- 7.1. As a routine screening evaluation after a percutaneous transluminal coronary angioplasty (PTCA) with or without stenting or coronary artery bypass surgery (CABG) prior to discharge from the acute care setting; *or*
  - 7.2. As a routine screening evaluation after a re-vascularization procedure (PTCA with stenting or CABG) at an interval of less than 2 years from the procedure if there is no worsening in the members symptomatology and if the member had symptoms prior to the intervention, and there is no history of congestive heart failure. Note: If there is a history of congestive heart failure and the member is status post re-vascularization, repeat nuclear imaging as frequently as annually may be medically necessary; *or*
  - 7.3. Assessment of vulnerable plaque; *or*
  - 7.4. Evaluation of a member with an acute coronary event and hemodynamic instability, shock, or mechanical complications of the event; *or*
  - 7.5. In the setting of acute chest pain or equivalent symptoms with a high likelihood of being acute coronary syndrome, when there has been a diagnosis of acute myocardial infarction, in the immediate post-thrombolytic period, or when there is a high pre-test likelihood of significant coronary disease as demonstrated by marked ST segment elevation on the ECG; *or*
  - 7.6. Prior to high-risk<sup>+</sup> surgery when the member is asymptomatic and there was a normal cardiac catheterization, coronary intervention (PTCA, stenting, CABG), or normal nuclear stress test less than 1 year before the surgical date; *or*
  - 7.7. Prior to intermediate-risk<sup>+</sup> non-cardiac surgery if the member is capable of, and has no contraindication to standard stress testing<sup>\*\*</sup>; *or*
  - 7.8. Prior to low-risk<sup>+</sup> non-cardiac surgery for risk assessment; *or*
  - 7.9. Re-evaluation of members without chest pain or equivalent symptoms, without known coronary disease, at high-risk for coronary disease (based upon the Framingham score greater than 10)\*, who have an initial negative radionuclear imaging study, when it has been less than 2 years since the last radionuclear study; *or*

- 7.10. Re-evaluation of members without chest pain or equivalent symptoms or with stable symptoms, with known coronary disease as determined by prior abnormal catheterization or SPECT cardiac study (but without prior infarction), when it has been less than 1 year since the last radionuclear study. Note: if the member has worsening symptoms or if the member had silent ischemia, more frequent imaging or other diagnostic testing or interventions may be medically necessary; *or*
  - 7.11. Screening of members with chest pain or chest pain equivalent symptoms when there is a low probability of coronary disease (Framingham score less than 10)\*, no history of diabetes, and there are no impediments or contraindications to non-nuclear stress testing\*\*; *or*
  - 7.12. Screening of members without chest pain or equivalent symptoms when there is a low probability of coronary disease (Framingham score less than 10)\* and no history of diabetes; + Surgical risk categories.
7. Requests that do not meet the criteria established by this procedure will be referred to a TCHP Medical Director/Physician Reviewer for review and the Denial Policy will be followed.
  8. Preauthorization is based on medical necessity and not a guarantee of benefits or eligibility. Even if preauthorization is approved for treatment or a particular service, that authorization applies only to the medical necessity of treatment or service. All services are subject to benefit limitations and exclusions. Providers are subject to State and Federal Regulatory compliance and failure to comply may result in retrospective audit and potential financial recoupment.

**REFERENCES:****Peer Reviewed Publications:**

- Bertagna F, Barozzi O, Puta E, et al. Residual brain viability, evaluated by (99m)Tc-ECD SPECT, in patients with suspected brain death and with confounding clinical factors. Nucl Med Commun. 2009; 30(10):815-821.
- Brem RF, Fishman M, Rapeiyea JA. Detection of ductal carcinoma in situ with mammography, breast specific gamma imaging, and magnetic resonance imaging: a comparative study. Acad Radiol. 2007; 14(8):945-950.
- Chiou JF, Lin MC, Chen DR, et al. Usefulness of thallium-201 SPECT Scintimammography to differentiate benign from malignant breast masses in mammographically dense breasts. Cancer Invest. 2003; 21(6):863-868.
- Coover LR, Caravaglia G, Kuhn P. Scintimammography with dedicated breast camera detects and localizes occult carcinoma. J Nucl Med. 2004; 45(4):553-558.
- Ellis RJ, Kaminsky DA, Zhou EH, et al. Ten-year outcomes: the clinical utility of single photon emission computed tomography/computed tomography capromab pendetide (prostascint) in a cohort diagnosed with localized prostate cancer. Int J Radiat Oncol Biol Phys. 2011; 81(1):29-34.
- El-Zawahry AM, Clarke HS, Eskridge MR, et al. Capromab pendetide scanning has a potential role in optimizing patient selection for salvage cryosurgical ablation of the prostate. Urology. 2010; 76(5):1162-1167.

- Fondrinier E, Muratet JP, Anglade E, et al. Clinical experience with 99mTc-MIBI Scintimammography in patients with breast microcalcifications. *Breast*. 2004; 13(4):316-320.
- Gadzicki M, Bikiewicz M, Modkowska E, et al. Cortical scintigraphy in the evaluation of renal defects in children with vesico-ureteral reflux--optimization of the procedure and study interpretation. *Nucl Med Rev Cent East Eur*. 2004; 7(2):157-164.
- Haseman MK, Rosenthal SA, Kipper SL, et al. Central abdominal uptake of indium-111 capromab pendetide (ProstaScint) predicts for poor prognosis in patients with prostate cancer. *Urology*. 2007; 70(2):303-308.
- Joffe AR, Lequier L, Cave D. Specificity of radionuclide brain blood flow testing in brain death: case report and review. *J Intensive Care Med*. 2010; 25(1):53-64.
- Khalkhali I, Baum JK, Villanueva-Meyer J, et al. (99m)Tc sestamibi breast imaging for the examination of patients with dense and fatty breasts: multicenter study. *Radiology*. 2002; 222(1):149-155.
- Koontz BF, Mouraviev V, Johnson JL, et al. Use of local (111) in-capromab pendetide scan results to predict outcome after salvage radiotherapy for prostate cancer. *Int J Radiat Oncol Biol Phys*. 2008; 71(2):358-361.
- Kupsch AR, Bajaj N, Weiland F, et al. Impact of DaTscan SPECT imaging on clinical management, diagnosis, confidence of diagnosis, quality of life, health resource use and safety in patients with clinically uncertain parkinsonian syndromes: a prospective 1-year follow-up of an open-label controlled study. *J Neurol Neurosurg Psychiatry*. 2012; 83(6):620-628.
- Matsuda H, Matsuda K, Nakamura F, et al. Contribution of subtraction ictal SPECT coregistered to MRI to epilepsy surgery: a multicenter study. *Ann Nucl Med*. 2009; 23(3):283-291.
- Mohammed AA, Shergill IS, Vandal MT, Gujral SS. ProstaScint and its role in the diagnosis of prostate cancer. *Expert Rev Mol Diagn*. 2007; 7(4):345-349.
- Mohkam M, Maham S, Rahmani A, et al. Technetium Tc 99m dimercaptosuccinic acid renal scintigraphy in children with acute pyelonephritis: correlation with other imaging tests. *Iran J Kidney Dis*. 2010; 4(4):297-301.
- Mouraviev V, Madden JF, Broadwater G, et al. Use of 111in-capromab pendetide immunoscintigraphy to image localized prostate cancer foci within the prostate gland. *J Urol*. 2009; 182(3):938-947.
- Munari M, Zucchetta P, Carollo C, et al. Confirmatory tests in the diagnosis of brain death: comparison between SPECT and contrast angiography. *Crit Care Med*. 2005; 33(9):2068-2073.
- Nagda SN, Mohideen N, Lo SS, et al. Long-term follow-up of 111In-capromab pendetide (ProstaScint) scan as pretreatment assessment in patients who undergo salvage radiotherapy for rising prostate-specific antigen after radical prostatectomy for prostate cancer. *Int J Radiat Oncol Biol Phys*. 2007; 67(3):834-840.
- Noz ME, Chung G, Lee BY, et al. Enhancing the utility of prostascint SPECT scans for patient management. *J Med Syst*. 2006; 30(2):123-132.
- Okuyaz C, Gücüyener K, Karabacak NI, et al. Tc-99m-HMPAO SPECT in the diagnosis of brain death in children. *Pediatr Int*. 2004; 46(6):711-714.
- Özülker T, Özülker F, Özpaçacı T, et al. The efficacy of (99m)Tc-MIBI scintimammography in the evaluation of breast lesions and axillary involvement: a comparison with X-rays mammography, ultrasonography and magnetic resonance imaging. *Hell J Nucl Med*. 2010; 13(2):144-149.
- Pan L, Han Y, Sun X, et al. FDG-PET and other imaging modalities for the evaluation of breast cancer recurrence and metastases: a meta-analysis. *J Cancer Res Clin Oncol*. 2010; 136(7):1007-1022.

- Proao JM, Sodee DB, Resnick MI, Einstein DB. The impact of a negative (111)indium-capromab pendetide scan before salvage radiotherapy. J Urol. 2006; 175(5):1668-1672.
- Pucar D, Sella T, Schöder H. The role of imaging in the detection of prostate cancer local recurrence after radiation therapy and surgery. Curr Opin Urol. 2008; 18(1):87-97.
- Sampalis FS, Denis R, Picard D, et al. International prospective evaluation of Scintimammography with (99m)technetium sestamibi. Am J Surg. 2003; 185(6):544-549.
- Schillaci O, Scopinaro F, Spanu A, et al. Detection of axillary lymph node metastases in breast cancer with Tc-99m tetrofosmin scintigraphy. Int J Oncol. 2002; 20(3):483-487.
- Spanu A, Dettori G, Nuvoli S, et al. (99m)Tc-tetrofosmin SPET in the detection of both primary breast cancer and axillary lymph node metastasis. Eur J Nucl Med. 2001; 28(12):1781-1794.
- Uchida Y, Minoshima S, Okada S, et al. Diagnosis of dementia using perfusion SPECT imaging at the patient's initial visit to a cognitive disorder clinic. Clin Nucl Med. 2006; 31(12):764-773.
- Vlaar AM, de Nijs T, Kessels AG, et al. Diagnostic value of 123I-ioflupane and 123I-iodobenzamide SPECT scans in 248 patients with parkinsonian syndromes. Eur Neurol. 2008; 59(5):258-266.
- von Oertzen TJ, Mormann F, Urbach H, et al. Prospective use of subtraction ictal SPECT coregistered to MRI (SISCOM) in presurgical evaluation of epilepsy. Epilepsia. 2011; 52(12):2239-2248.
- Weigert JM, Bertrand ML, Lanzkowsky L, et al. Results of a multicenter patient registry to determine the clinical impact of breast-specific gamma imaging, a molecular breast imaging technique. AJR Am J Roentgenol. 2012; 198(1):W69-W75.
- Zhou M, Johnson N, Gruner S, et al. Clinical utility of breast-specific gamma imaging for evaluating disease extent in the newly diagnosed breast cancer patient. Am J Surg. 2009; 197(2):159-163.

### Government Agency, Medical Society, and Other Authoritative Publications:

- Texas Medicaid Provider Procedure Manual:  
[http://www.tmhp.com/TMHP\\_File\\_Library/Provider\\_Manuals/TMPPM/2019/Feb\\_2019%20TMPPM.pdf](http://www.tmhp.com/TMHP_File_Library/Provider_Manuals/TMPPM/2019/Feb_2019%20TMPPM.pdf) Accessed 5/20/19

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