

Single Photon Emission Computed Tomography (SPECT) Indications

Adjudication Guideline

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Medical

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1. Abstract

1.1 For Members

A Single Photon Emission Computed Tomography (SPECT) scan is a type of nuclear imaging test that shows how blood flows to tissues and organs.

A SPECT scan integrates two technologies to view your body: computed tomography (CT) and a radioactive material (tracer). Modern SPECT-CT systems provide superior diagnostic accuracy through:

- Attenuation correction for improved image quality
- Quantitative analysis for precise measurements
- Hybrid imaging combining functional and anatomical information

1.2 For Medical Professionals

SPECT and SPECT-CT imaging provide functional assessment of organ perfusion, metabolism, and receptor binding. This guideline now includes:

- Quantitative SPECT protocols for dosimetry and standardized uptake values
- Attenuation correction requirements mandatory for all cardiac studies
- Age-specific protocols for paediatric (<18 years) and adult populations
- Radiation dose optimization following ALARA principles

2. Scope

This adjudication rule specifies coverage details for medically necessary indications of SPECT and SPECT-CT imaging, including:

- Traditional planar and tomographic SPECT
- SPECT-CT hybrid imaging
- Quantitative SPECT applications
- Cardiac amyloidosis imaging protocols

3. Adjudication Policy

3.1 Eligibility / Coverage Criteria

A. CARDIAC INDICATIONS

- Symptomatic patients with intermediate pretest probability of CAD
- Post-revascularization evaluation with new/worsening symptoms
- Viability assessment prior to revascularization in patients with LV dysfunction

AGE CRITERIA

- Paediatric (<18 years): Requires paediatric cardiology consultation
- Adult (≥ 18 years): Standard protocols apply
- Elderly (≥ 75 years): Consider frailty and life expectancy

FREQUENCY LIMITATIONS

- Maximum 2 studies per year unless clinically justified
- Annual follow-up appropriate for high-risk patients
- Post-intervention: Not before 3 months unless symptomatic

B. NON-CARDIAC INDICATIONS

Oncology Applications:

- Metastatic bone disease evaluation and staging
- Response to treatment monitoring in bone metastases
- Detection of skeletal involvement in known malignancies
- Differentiation of benign vs malignant bone lesions

Orthopaedic Applications:

- Stress fractures (especially when X-ray/MRI inconclusive)
- Osteomyelitis evaluation and extent determination
- Prosthetic joint complications (loosening, infection)
- Complex regional pain syndrome (CRPS) evaluation
- Avascular necrosis assessment
- Sports-related injuries (when other imaging inconclusive)

Other Applications:

- Back pain evaluation when MRI contraindicated or inconclusive
- Post-surgical spine evaluation (fusion assessment)
- Spondylolysis and spondylolisthesis evaluation
- Epilepsy: Pre-surgical evaluation for refractory seizures
- Stroke: Evaluation when CT/MRI contraindicated
- Brain Tumor: Differentiation of recurrence vs radiation necrosis
- Vasculitis: Central nervous system involvement assessment
- Parkinson disease vs essential tremor differentiation
- Drug-induced parkinsonism evaluation
- Dementia with Lewy bodies assessment
- CSF leak detection and localization
- Hydrocephalus shunt patency evaluation
- Normal pressure hydrocephalus assessment
- When CT pulmonary angiogram (CTPA) contraindicated
- Pregnancy with suspected PE (after ultrasound)

- Renal insufficiency precluding contrast studies
- Severe contrast allergy with failed pre-medication
- Chronic thromboembolic pulmonary hypertension (CTEPH)
- Acute cholecystitis diagnosis when ultrasound inconclusive
- Biliary atresia evaluation in infants
- Post-operative biliary complications
- Sphincter of Oddi dysfunction assessment
- Meckel diverticulum detection in paediatric patients
- Renal transplant evaluation and monitoring
- Renovascular hypertension assessment
- Urinary tract obstruction evaluation
- Vesicoureteral reflux assessment
- Congenital anomalies evaluation
- Post-pyelonephritis scarring assessment

3.2 Requirements for Coverage

Providers must ensure that the medical record includes investigations pertinent to the patient's condition, such as:

- Clinical Notes:
- Laboratory and Imaging Results:
- Treatment Plan

3.3 Non-Coverage

Daman does not cover SPECT imaging when used in pre-operative settings for low risk surgeries such as endoscopic procedures, superficial procedures, cataract surgery or breast surgeries done under local anaesthesia.

Daman considers the use of SPECT in the listed below conditions investigational and experimental, therefore, not covered:

- Detection of air leak/pneumothorax; or

- Diagnosis or assessment of members with attention deficit/hyperactivity disorder; or
- Diagnosis or assessment of members with autism ; or
- Diagnosis or assessment of members with personality disorders (e.g., aggressive and violent behaviours, anti-social personality disorder including psychopathy, schizotypal personality disorder, as well as borderline personality disorder); or
- Diagnosis or assessment of members with schizophrenia; or
- Diagnosis or assessment of stroke members; or
- Differential diagnosis of Parkinson's disease from other Parkinsonian syndromes; or
- Differentiating malignant from benign lung lesions; or
- Evaluation of members with Endo leak; or
- Evaluation of members with generalized pain or insomnia; or
- Evaluation of members with head trauma; or
- Initial or differential diagnosis of members with suspected dementia (e.g., Alzheimer's disease, dementia with Lewy bodies, fronto-temporal dementia, and vascular dementia); or
- Multiple sclerosis; or
- Pre-surgical evaluation of members undergoing lung volume reduction surgery; or
- Prosthetic graft infection; or
- Scanning of internal carotid artery during temporary balloon occlusion; or - Vasculitis.
- ALL nuclear medicine studies in pregnancy (except life-threatening emergency)
- Breastfeeding mothers without appropriate cessation protocols
- Women of childbearing age without negative pregnancy test
- Studies without paediatric nuclear medicine expertise available
- Inappropriate radiation dosing for paediatric patients
- Lack of age-appropriate sedation protocols when needed
- Facilities not accredited for paediatric nuclear medicine

- Studies unlikely to change management in terminal illness
- When life expectancy is limited and results would not alter care
- Severe cognitive impairment preventing cooperation

3.4 Payment and Coding Rules

Please apply Regulator payment rules and regulations, as well as relevant coding manuals for ICD, CPT etc.

4. Denial Codes

Code	Code Description
MNEC-003	Service not clinically indicated based on good clinical practice
MNEC-004	Service not clinically indicated without additional supporting diagnosis
AUTH-001	Prior approval required and was not obtained

5. Appendices

5.1 References

- <https://careweb.careguidelines.com/ed21/index.html>
- <http://bestpractice.bmj.com/best-practice/monograph/544/diagnosis/tests.html>
- https://www.acr.org/~media/ACR/Documents/PGTS/guidelines/CT_SPECT_Brain_Perfusion.pdf
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5.2 Revision History

Date	Change(s)
29/11/2017	Release V1.0
17/12/2024	Review as per the system requirement
30/09/2025	Release V2.0 Update of coverage criteria and template Reference update

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