

Nuclear Cardiovascular Exams

Nuclear cardiovascular exams employ radioisotope imaging to evaluate heart function. The most common exams are myocardial perfusion imaging and cardiac blood pool imaging, which are discussed in this section. For information on cardiac PET studies, please see the Coding Strategies® *Navigator® for Diagnostic Radiology*.

Myocardial Perfusion Imaging

Myocardial perfusion imaging (MPI) is the most commonly performed nuclear cardiovascular exam. MPI is used to identify areas of the heart muscle that are not receiving adequate blood flow. It is also used to determine whether it is safe to give a cancer patient a chemotherapy drug like Adriamycin that can cause heart damage.

MPI can be performed using thallium-201 (Tl-201) or technetium-99m (Tc-99m). Sestamibi, tetrofosmin, and teboroxime are radiopharmaceuticals containing Tc-99m. All of these agents allow the physician to visualize blood flow (perfusion) within the myocardium.

MPI can be performed using planar technique, SPECT technique, or both. SPECT (single photon emission computed tomography) produces a 3D dataset. In order to assign the appropriate CPT® code, it is necessary to know which technique was used. SPECT is the technique of choice and is performed more frequently than planar imaging. The physician's report should indicate the technique.

Many MPI studies include imaging during stress (exercise or physiologic) and at rest. When a technetium compound is used, the patient must be given separate injections for the rest and stress scans, but if thallium is used, only one injection is needed, since the thallium will redistribute during the second part of the exam.

Some protocols call for additional imaging on a subsequent day. However, only one MPI code should be reported even when imaging is performed on multiple days. (See *CPT® Assistant*, May 2010, and *Clinical Examples in Radiology*, Winter 2010.)

Codes for MPI

SPECT MPI scans are reported with codes 78451-78452:

- A **single** SPECT study is reported with code **78451(-26)** [*Myocardial perfusion imaging, tomographic (SPECT) (including attenuation correction, qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); single study, at rest or stress (exercise or pharmacologic)*].
- **Multiple** SPECT studies are reported with code **78452(-26)** [*. . . multiple studies, at rest and/or stress (exercise or pharmacologic) and/or redistribution and/or rest reinjection*].

Documentation of Electrophysiology Procedures

Claims for EP studies are sometimes paid incorrectly because third party payors do not understand the procedures or the coding guidelines that apply to them. Providers can improve their chances of receiving correct payment by ensuring that these very complex services are adequately documented. Incomplete documentation greatly increases the likelihood that the payor will decide to bundle services that should be separately paid under CPT® coding guidelines.

Documentation Guidelines

The following elements should be included in the EP report:

- **Clinical History.** The report should indicate why the procedure is necessary, including the patient's signs and symptoms or any confirmed diagnosis.
- **Technique.** The report should fully describe the technique used to perform the procedure. In the case of a diagnostic EP study, the physician should clearly indicate the locations at which recording, and pacing were performed. (Remember that in order to charge for a comprehensive EP study as a stand-alone service, the report should indicate recording at the bundle of His and pacing and recording at the high right atrium and right ventricle.) In particular, the physician should document any pacing or recording in the left heart, including performance of transseptal puncture. Keep in mind that documentation of findings without accompanying documentation of technique is unlikely to withstand a payor audit.
- **Ancillary Procedures.** When the encounter involves the use of ancillary procedures such as mapping, intracardiac echocardiography, or IV infusion of medication to induce or suppress an arrhythmia, the report should clearly describe these services and indicate the reason why they were necessary.
- **Ablation Services.** Clearly document the type of arrhythmia that is being treated, since this will determine the base procedure code (93653 vs 93654 vs 93656). Document any diagnostic EP testing performed prior to the ablation. Provide clear and detailed documentation of any ablation of additional mechanisms of arrhythmia (i.e., a different type of arrhythmia than that treated by the primary ablation procedure) in order to support add-on code 93655 or 93657, when appropriate.

Transcatheter Aortic Valve Replacement

Aortic stenosis is narrowing of the aortic valve. The valve leaflets become stiff, and the heart must work harder to push blood through the valve. Usually this condition is treated by surgically excising the patient's diseased valve and implanting a new valve, but patients who are not candidates for this surgery may undergo **transcatheter aortic valve replacement** (TAVR). In this procedure, the patient's diseased valve is dilated with a balloon, and then a catheter-mounted prosthetic aortic valve is positioned inside the native valve.

TAVR is usually performed by endovascular approach, either through open arterial exposure or in some cases by percutaneous puncture. But in some patients the catheter-mounted valve must be placed through an open chest incision made by a cardiothoracic surgeon.

Medicare Coverage

CMS has established a National Coverage Determination (NCD 20.32) for TAVR. The procedure is reimbursed under Coverage with Evidence Development (CED), which is a program that allows CMS to pay for a procedure while gathering data on the procedure's safety and effectiveness. The coverage requirements for TAVR are briefly summarized below, but please refer to the NCD for complete information.

1. The procedure must be performed for treatment of symptomatic aortic stenosis, using a complete valve and implantation system that has FDA premarket approval for the system's FDA-approved indication.
2. The patient must be examined face-to-face by two cardiac surgeons independently. The surgeons must evaluate the patient's suitability for open aortic valve surgery and provide the documented rationale for their clinical judgment to the heart team.
3. The patient must be under the care of a heart team preoperatively and postoperatively. The heart team is defined as a "cohesive, multi-disciplinary, team of medical professionals" that "embodies collaboration and dedication across medical specialties to offer optimal patient-centered care." Additionally, the procedure must be performed in a hospital that meets a set of detailed requirements, including an on-site heart valve surgery program.
4. The heart team's interventional cardiologist(s) and cardiac surgeon(s) must jointly participate in the intraoperative technical aspects of the TAVR procedure.
5. The heart team and the hospital must participate in a "prospective, national, audited registry."

When submitting a claim to Medicare for TAVR, the provider must include the 8-digit clinical trial number on the claim. Modifier Q0 (*Investigational clinical service provided in a clinical research study that is in an approved clinical research study*) must be applied to the TAVR procedure code, and ICD-10-CM code Z00.6 (*Encounter for examination for normal comparison and control in clinical research program*) must be listed as a secondary diagnosis.