2015
Reimbursement
Guide
for Myocardial Perfusion Imaging
including radiopharmaceuticals
and related product information
Cardinal Health is the only national network that provides the full range of patient-specific, unit dose, cardiac imaging agents for nuclear medicine which includes:

- Myoview™ Kit for the Preparation of Technetium Tc99m Tetrofosmin for Injection
- Cardiolite® Kit for the Preparation of Technetium Tc99m Sestamibi for Injection
- Tc99m sestamibi (generic)
- Thallous chloride TI201
- All commercially available pharmaceutical stress agents

More for you … we dispense a wide variety of brands to supply exactly what your nuclear medicine practice needs.

Cardinal Health reflects the highest standards in compounding, delivery, safety, consulting, information technology and business support services.
## Radiopharmaceuticals

<table>
<thead>
<tr>
<th>HCPCS Code</th>
<th>Description</th>
<th>Medicare Hospital Outpatient Prospective Payment System (HOPPS)</th>
<th>Medicare Part B Physician Fee Schedule Payment Method (MPFS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A9500</td>
<td>Technetium Tc99m sestamibi, diagnostic, per study dose</td>
<td>Assigned status of “N” payment packaged into APC rate</td>
<td>Invoice or AWP based²</td>
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<tr>
<td>A9502</td>
<td>Technetium Tc99m tetrofosmin, diagnostic, per study dose</td>
<td>Assigned status of “N” payment packaged into APC rate</td>
<td>Invoice or AWP based²</td>
</tr>
<tr>
<td>A9505</td>
<td>Thallium TI-201 thallous chloride, diagnostic, per millicurie</td>
<td>Assigned status of “N” payment packaged into APC rate</td>
<td>Invoice or AWP based²</td>
</tr>
</tbody>
</table>

1 HCPCS code A9500 is used to bill for either Tc99m Cardiolite® or Tc99m sestamibi (generic), as the descriptor is not brand specific.

2 Medicare Part B contractors determine radiopharmaceutical payment allowance limits based on the methodology in place as of November 2003 which allows invoice or Average Wholesale Price (AWP) based reimbursement. For more specific information and billing guidance, contact your local Medicare Part B contractor directly.

## Pharmacologic stress agents

<table>
<thead>
<tr>
<th>HCPCS Code</th>
<th>Description</th>
<th>HOPPS Payment</th>
<th>MPFS Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>J0153</td>
<td>Injection adenosine, 1 mg</td>
<td>Assigned status of “N” payment packaged into APC rate</td>
<td>$0.85³</td>
</tr>
<tr>
<td>J1245</td>
<td>Injection, dipyridamole, per 10 mg</td>
<td>Assigned status of “N” payment packaged into APC rate</td>
<td>$0.80³</td>
</tr>
<tr>
<td>J1250</td>
<td>Injection, dobutamine HCL, per 250 mg</td>
<td>Assigned status of “N” payment packaged into APC rate</td>
<td>$6.40³</td>
</tr>
<tr>
<td>J2785</td>
<td>Injection, regadenoson, per 0.1 milligram</td>
<td>Assigned status of “N” payment packaged into APC rate</td>
<td>$52.62³</td>
</tr>
</tbody>
</table>

³ Listed reimbursement reflects the Medicare 2015 ASP Drug Pricing Files. These rates may change on a quarterly basis. For current information, contact the manufacturer.
<table>
<thead>
<tr>
<th>CPT Code</th>
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<th>HOPPS Payment</th>
<th>MPFS Payment Professional</th>
<th>MPFS Payment Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>78451</td>
<td>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)</td>
<td>Assigned to APC 0377; payment rate of $1,140.54</td>
<td>$67.93</td>
<td>$286.04</td>
</tr>
<tr>
<td>78452</td>
<td>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); multiple studies, at rest and/or stress (exercise or pharmacologic) and/or redistribution and/or rest reinjection</td>
<td>Assigned to APC 0377; payment rate of $1,140.54</td>
<td>$80.09</td>
<td>$410.11</td>
</tr>
<tr>
<td>78453</td>
<td>Myocardial perfusion imaging, planar (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)</td>
<td>Assigned to APC 0377; payment rate of $1,140.54</td>
<td>$49.70</td>
<td>$266.01</td>
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<tr>
<td>78454</td>
<td>Myocardial perfusion imaging, planar (including attenuation correction, qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); multiple studies, at rest and/or stress (exercise or pharmacologic) and/or redistribution and/or rest reinjection</td>
<td>Assigned to APC 0377; payment rate of $1,140.54</td>
<td>$67.22</td>
<td>$384.72</td>
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</tbody>
</table>
## Myocardial perfusion imaging (national average payment)

### Cardiovascular stress

<table>
<thead>
<tr>
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<th>MPFS Payment Global</th>
</tr>
</thead>
<tbody>
<tr>
<td>93015</td>
<td>Cardiovascular stress test using maximal or submaximal treadmill or bicycle exercise, continuous electrocardiographic monitoring, and/or pharmacological stress; with physician supervision, with interpretation and report</td>
<td>Not applicable¹</td>
<td>$76.87</td>
</tr>
<tr>
<td>93016</td>
<td>Cardiovascular stress test using maximal or submaximal treadmill or bicycle exercise, continuous electrocardiographic monitoring, and/or pharmacological stress; physician supervision only, without interpretation and report</td>
<td>Not applicable¹</td>
<td>$22.53</td>
</tr>
<tr>
<td>93017</td>
<td>Cardiovascular stress test using maximal or submaximal treadmill or bicycle exercise, continuous electrocardiographic monitoring, and/or pharmacological stress; tracing only, without interpretation and report</td>
<td>Assigned to APC 0100; packaged if performed on same date of service as other service</td>
<td>$39.69</td>
</tr>
<tr>
<td>93018</td>
<td>Cardiovascular stress test using maximal or submaximal treadmill or bicycle exercise, continuous electrocardiographic monitoring, and/or pharmacological stress; interpretation and report only</td>
<td>Not applicable¹</td>
<td>$14.66</td>
</tr>
</tbody>
</table>

¹Code includes physician professional services that are not paid under HOPPS.
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<td>93018</td>
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</tr>
</tbody>
</table>

1 Code includes physician professional services that are not paid under HOPPS.

Suggested Medicare Hospital Revenue Codes:
- 0341 Nuclear medicine diagnostic procedures
- 0343 Diagnostic radiopharmaceuticals
- 0636 Stress pharmaceuticals

Additional sources of reimbursement information:
- CMS-1613-FC; Hospital Outpatient Prospective Payment - Final Rule with Comment Period and CY2015 Payment Rates
  http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalOutpatientPPS/Hospital-Outpatient-Regulations-and-Notices-Items/CMS-1613-FC.html?DLPage=1&DLSort=2&DLSortDir=descending
- CMS-1612-FC; Medicare Physician Fee Schedule Final Rule with comment period CY2015
  http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Federal-Regulation-Notices-Items/CMS-1612-FC.html?DLPage=1&DLSort=2&DLSortDir=descending
- The Society of Nuclear Medicine and Molecular Imaging procedure and radiopharmaceutical coding tables with Medicare payment rates:
  - Tables for hospital outpatient setting
    http://www.snmmi.org/ClinicalPractice/content.aspx?ItemNumber=1791&navItemNumber=10806
  - Tables for physician office/clinic setting:
    http://www.snmmi.org/ClinicalPractice/content.aspx?ItemNumber=6502&navItemNumber=10807
- Medicare 2015 ASP Drug Pricing Files:
  http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Part-B-Drugs/McrPartBDrugAvgSalesPrice/2015ASPFiles.html
- National Drug Code (NDC) Directory:
  http://www.accessdata.fda.gov/scripts/cder/ndc/default.cfm

Manufacturer reimbursement websites:
- Lantheus Medical Imaging, Inc.:
  http://www.lantheus.com/reimbursement.html
- GE Healthcare:
- Astellas Pharma US, Inc.:
Reimbursement information is provided by Cardinal Health as general coding and payment information. This information is not intended to replace or serve as a substitute for your duty to verify that such information is proper for your particular circumstances. Any codes reported should accurately reflect the procedures performed and the patient’s conditions. You may want to consult with local payers to confirm compliance with local policies, or otherwise review and confirm reimbursement policies with your own legal or professional advisors. Regulations may change from time to time. Cardinal Health has no obligation to inform the customer of any such changes.

*Payments listed in this guide are based on CMS payments effective January 1, 2015.*

Cardinal Health is committed to supporting our customers’ needs and is proud to provide ongoing solutions that promote safe and responsible practices in the field of nuclear medicine.
Important safety information

**Cardiolite® (Kit for the Preparation of Technetium Tc99m Sestamibi for Injection) and Tc99m sestamibi (generic)**

CARDIOLITE® has been rarely associated with acute severe allergic and anaphylactic events of angioedema and generalized urticaria. In some patients the allergic symptoms developed on the second injection during CARDIOLITE® imaging. The most frequently reported adverse events include headache, chest pain/angina, ST segment changes on ECG, nausea, and abnormal taste and smell. Infrequently, death has occurred 4 to 24 hours after Tc-99m Sestamibi use and is usually associated with exercise stress testing (See Section 5.2). Pharmacologic induction of cardiovascular stress may be associated with serious adverse events such as myocardial infarction, arrhythmia, hypotension, bronchoconstriction and cerebrovascular events.

Source: [www.cardiolite.com](http://www.cardiolite.com)

**Myoview™ (Kit for the Preparation of Technetium Tc99m Tetrofosmin for Injection)**

In studying patients with known or suspected coronary artery disease, care should be taken to ensure continuous cardiac monitoring and availability of emergency cardiac treatment. As with all injectable drug products, allergic reactions, and anaphylaxis may occur. Pharmacologic induction of cardiovascular stress may be associated with serious adverse events such as myocardial infarction, arrhythmia, hypotension, bronchoconstriction, and cerebrovascular events. Caution should be used when pharmacologic stress is selected as an alternative to exercise; it should be used when indicated and in accordance with the pharmacologic stress agent's labeling. The most common adverse reactions reported from post-marketing experience included rash, urticaria, abnormal vision, allergic reactions, and fever.

Source: [http://md.gehealthcare.com/pdfs/Myoview.pdf](http://md.gehealthcare.com/pdfs/Myoview.pdf)

**Thallous Chloride T1201 Injection**

Do not administer Lexiscan to patients with second- or third-degree AV block or sinus node dysfunction unless these patients have a functioning artificial pacemaker. Fatal cardiac arrest, life-threatening ventricular arrhythmias, and myocardial infarction may result from the ischemia induced by pharmacologic stress agents. Hypersensitivity including anaphylaxis, angioedema, cardiac or respiratory arrest, respiratory distress, decreased oxygen saturation, hypotension, throat tightness, urticaria and rashes have occurred. Resuscitation equipment and trained staff should be immediately available before administering Lexiscan. Adenosine receptor agonists, including Lexiscan, can depress the SA and AV nodes and may cause first-, second-, or third-degree AV block, or sinus bradycardia requiring intervention. In postmarketing experience, heart block (including third degree), and asystole within minutes of Lexiscan administration have occurred. Adenosine receptor agonists, including Lexiscan, induce arterial vasodilation and hypotension. The risk of serious hypotension may be higher in patients with autonomic dysfunction, hypovolemia, left main coronary artery stenosis, stenotic valvular heart disease, pericarditis or pericardial effusions, or stenotic carotid artery disease with cerebrovascular insufficiency. In postmarketing experience, transient ischemic attack, seizures and syncope have been observed. Adenosine receptor agonists, including Lexiscan, may result in clinically significant increases in blood pressure in some patients. In postmarketing experience, cases of potentially clinically significant hypertension have been reported, particularly in patients with underlying hypertension and when low-level exercise was included in the MPI. Adenosine receptor agonists, including Lexiscan, may cause dyspnea, bronchoconstriction and respiratory compromise. Appropriate bronchodilator therapy and resuscitative measures should be available prior to Lexiscan administration. The most common adverse reactions (≥5%) to Lexiscan are dyspnea, headache, flushing, chest discomfort, angina pectoris or ST-segment depression, dizziness, chest pain, nausea, abdominal discomfort, dysgeusia, and feeling hot. Most adverse reactions began soon after dosing, and generally resolved within approximately 15 minutes, except for headache, which resolved in most patients within 30 minutes. Aminophylline was used as a reversal agent in 3% of patients. In postmarketing experience, QTc prolongation, tremor, abdominal pain in association with nausea, vomiting, or myalgias, and diarrhea, fecal incontinence, wheezing and musculoskeletal pain have occurred.

Source: [http://imaging.coviden.com](http://imaging.coviden.com)

**Lexiscan™ (regadenoson injection)**

Do not administer Lexiscan to patients with second- or third-degree AV block or sinus node dysfunction unless these patients have a functioning artificial pacemaker. Fatal cardiac arrest, life-threatening ventricular arrhythmias, and myocardial infarction may result from the ischemia induced by pharmacologic stress agents. Hypersensitivity including anaphylaxis, angioedema, cardiac or respiratory arrest, respiratory distress, decreased oxygen saturation, hypotension, throat tightness, urticaria and rashes have occurred. Resuscitation equipment and trained staff should be immediately available before administering Lexiscan. Adenosine receptor agonists, including Lexiscan, can depress the SA and AV nodes and may cause first-, second-, or third-degree AV block, or sinus bradycardia requiring intervention. In postmarketing experience, heart block (including third degree), and asystole within minutes of Lexiscan administration have occurred. Adenosine receptor agonists, including Lexiscan, induce arterial vasodilation and hypotension. The risk of serious hypotension may be higher in patients with autonomic dysfunction, hypovolemia, left main coronary artery stenosis, stenotic valvular heart disease, pericarditis or pericardial effusions, or stenotic carotid artery disease with cerebrovascular insufficiency. In postmarketing experience, transient ischemic attack, seizures and syncope have been observed. Adenosine receptor agonists, including Lexiscan, may result in clinically significant increases in blood pressure in some patients. In postmarketing experience, cases of potentially clinically significant hypertension have been reported, particularly in patients with underlying hypertension and when low-level exercise was included in the MPI. Adenosine receptor agonists, including Lexiscan, may cause dyspnea, bronchoconstriction and respiratory compromise. Appropriate bronchodilator therapy and resuscitative measures should be available prior to Lexiscan administration. The most common adverse reactions (≥5%) to Lexiscan are dyspnea, headache, flushing, chest discomfort, angina pectoris or ST-segment depression, dizziness, chest pain, nausea, abdominal discomfort, dysgeusia, and feeling hot. Most adverse reactions began soon after dosing, and generally resolved within approximately 15 minutes, except for headache, which resolved in most patients within 30 minutes. Aminophylline was used as a reversal agent in 3% of patients. In postmarketing experience, QTc prolongation, tremor, abdominal pain in association with nausea, vomiting, or myalgias, and diarrhea, fecal incontinence, wheezing and musculoskeletal pain have occurred.

Source: [www.lexiscan.com](http://www.lexiscan.com)
Important safety information

Adenoscan® (adenosine injection)

Adenoscan is contraindicated in patients with second- or third-degree AV block, unless these patients have a functioning artificial pacemaker, sinus node disease, and known or suspected bronchoconstrictive or bronchospastic lung disease. Fatal cardiac arrest, sustained ventricular tachycardia (requiring resuscitation), and nonfatal myocardial infarction have been reported coincident with Adenoscan infusion. Patients with unstable angina may be at greater risk. Appropriate resuscitative measures should be available. Adenoscan is a potent peripheral vasodilator and can cause significant hypotension. The risk of hypotension may be higher in patients with cardiac or cerebrovascular insufficiency. Adenoscan exerts a direct depressant effect on the SA and AV nodes and has the potential to cause first-, second- or third-degree AV block, or sinus bradycardia. Increases in systolic and diastolic pressure have been observed. Adenosine receptor agonists, including Adenoscan, may cause bronchoconstriction and respiratory compromise. Atrial fibrillation has been reported in patients with Adenoscan infusion and may last from a few seconds to hours; however, patients spontaneously converted to normal sinus rhythm. Most common adverse reactions (≥5%) to Adenoscan are flushing, chest discomfort, dyspnea, headache, discomfort of the throat, neck, or jaw, gastrointestinal discomfort, and lightheadedness/dizziness. Side effects with Adenoscan usually resolve quickly when the infusion is discontinued, although delayed or persistent effects have been observed.

Source: www.adenoscan.com

Dipyridamole Injection:

Serious adverse reactions associated with the administration of intravenous dipyridamole have included cardiac death, fatal and non-fatal myocardial infarction, ventricular fibrillation, symptomatic ventricular tachycardia, stroke, transient cerebral ischemia, seizures, anaphylactoid reaction, and bronchospasm. There have been reported cases of asystole, sinus node arrest, sinus node depression and conduction block. Patients with abnormalities of cardiac impulse formation/conduction or severe coronary artery disease may be at increased risk for these events. In a study of 3911 patients given intravenous dipyridamole as an adjunct to thallium myocardial perfusion imaging, two types of serious adverse events were reported: 1) four cases of myocardial infarction (0.1%), two fatal (0.05%); and two non-fatal (0.05%); and 2) six cases of severe bronchospasm (0.2%). Although the incidence of these serious adverse events was small (0.3%, 10 of 3911), the potential clinical information to be gained through use of intravenous dipyridamole thallium imaging (see INDICATION AND USAGE noting the rate of false positive and false negative results) must be weighed against the risk to the patient. Patients with a history of unstable angina may be at a greater risk for severe myocardial ischemia. Patients with a history of asthma may be at a greater risk for bronchospasm during dipyridamole injection use. He thallium myocardial perfusion imaging is performed with intravenous dipyridamole, parenteral aminophylline should be readily available for relieving adverse events such as bronchospasm or chest pain. Vital signs should be monitored during, and for 10–15 minutes following, the intravenous infusion of dipyridamole and an electrocardiographic tracing should be obtained using at least one chest lead. Should severe chest pain or bronchospasm occur, parenteral aminophylline may be administered by slow intravenous injection (50–100 mg over 30–60 seconds) in doses ranging from 50 to 250 mg. In the case of severe hypotension, the patient should be placed in a supine position with the head tilted down if necessary, before administration of parenteral aminophylline. If 250 mg of aminophylline does not relieve chest pain symptoms within a few minutes, sublingual nitroglycerin may be administrated. If chest pain continues despite use of aminophylline and nitroglycerin, the possibility of myocardial infarction should be considered. If the clinical condition of a patient with an adverse event permits a one minute delay in the administration of parenteral aminophylline, thallium-201 may be injected and allowed to circulate for one minute before the injection of aminophylline. This will allow initial thallium perfusion imaging to be performed before reversal of the pharmacologic effects of dipyridamole injection on the coronary circulation.

Source: www.tevauusa.com

Dobutamine Injection USP:

Increase in heart rate or blood pressure – Dobutamine may cause a marked increase in heart rate or blood pressure, especially systolic pressure. Approximately 10% of adult patients in clinical studies have had rate increases of 30 beats/minute or more, and about 7.5% have had a 50 mm Hg or greater increase in systolic pressure. Usually, reduction of dosage promptly reverses these effects. Because dobutamine facilitates atrioventricular conduction, patients with atrial fibrillation are at risk of developing rapid ventricular response. In patients who have atrial fibrillation with rapid ventricular response, a digitalis preparation should be used prior to institution of therapy with dobutamine. Patients with pre-existing hypertension appear to face an increased risk of developing an exaggerate pressor response. Ectopic activity – Dobutamine may precipitate or exacerbate ventricular ectopic activity, but rarely has caused ventricular tachycardia. Hypersensitivity – Reactions suggestive of hypersensitivity associated with administration of dobutamine including skin rash, fever, eosinophilia, and bronchospasm, have been reported occasionally. Dobutamine contains sodium bisulfite, a sulfite that may cause allergic-type reactions, including anaphylactic symptoms and life-threatening or less severe asthmatic episodes, in certain susceptible people. The overall prevalence of sulfite sensitivity in the general population is unknown and probably low. Sulfite sensitivity is seen more frequently in asthmatic than in nonasthmatic people.

Source: www.bedfordlabs.com

For complete package insert information for any of the listed products, go to: http://nps.cardinal.com/MSDSPI/Main.aspx