

INTRACORONARY BRACHYTHERAPY

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5/23, 5/24

Date Of Origin: July 2007

Status: Current

I. POLICY/CRITERIA

- A. Intracoronary brachytherapy with gamma or beta radioactive ribbons for the management of in-stent restenosis of native coronary vessels following successful percutaneous transluminal coronary angioplasty (PTCA) is medically necessary.
- B. Intracoronary brachytherapy for non-stented lesions, or for any type of lesion utilizing any other source (e.g., with radioactive stents) is not medically necessary.

NOTE: Currently, the Checkmate System (Cordis), the Beta-Cath System (Novoste), and the Galileo Intravascular Radiotherapy System (Guidant Corp.) are FDA approved for brachytherapy.

- C. Contraindications for intracoronary brachytherapy are as follows:

- Evidence of myocardial infarction within 3 days prior to brachytherapy
- Contraindication to aspirin, ticlopidine, or stainless steel
- Prior chest radiotherapy
- Life-threatening coexisting condition
- Severe peripheral vascular disease
- Child-bearing potential
- Anticipated difficulty with follow-up
- Serum creatinine > 2.0 mg/dL
- Left ventricular ejection fraction < 40%
- Unprotected left main coronary artery disease
- Lesion angulation > 45
- Intraprocedural angiographic evidence of thrombus, spasm, or dissection
- Multiple lesions in the same vessel
- Bifurcation or aorto-ostial lesions
- Non-FDA approved radiation delivery devices
- Non-FDA approved uses (i.e., target lesions) of radiation delivery devices

II. MEDICAL NECESSITY REVIEW

Prior authorization for certain drug, services, and procedures may or may not be required. In cases where prior authorization is required, providers will submit a request demonstrating that a drug, service, or procedure is medically necessary. For more information, please refer to the [Priority Health Provider Manual](#).

III. APPLICATION TO PRODUCTS

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

- ❖ **HMO/EPO:** *This policy applies to insured HMO/EPO plans.*
- ❖ **POS:** *This policy applies to insured POS plans.*
- ❖ **PPO:** *This policy applies to insured PPO plans. Consult individual plan documents as state mandated benefits may apply. If there is a conflict between this policy and a plan document, the provisions of the plan document will govern.*
- ❖ **ASO:** *For self-funded plans, consult individual plan documents. If there is a conflict between this policy and a self-funded plan document, the provisions of the plan document will govern.*
- ❖ **INDIVIDUAL:** *For individual policies, consult the individual insurance policy. If there is a conflict between this medical policy and the individual insurance policy document, the provisions of the individual insurance policy will govern.*
- ❖ **MEDICARE:** *Coverage is determined by the Centers for Medicare and Medicaid Services (CMS) and/or the Evidence of Coverage (EOC); if a coverage determination has not been adopted by CMS, this policy applies.*
- ❖ **MEDICAID/HEALTHY MICHIGAN PLAN:** *For Medicaid/Healthy Michigan Plan members, this policy will apply. Coverage is based on medical necessity criteria being met and the appropriate code(s) from the coding section of this policy being included on the Michigan Medicaid Fee Schedule located at: http://www.michigan.gov/mdch/0,1607,7-132-2945_42542_42543_42546_42551-159815--,00.html. If there is a discrepancy between this policy and the Michigan Medicaid Provider Manual located at: http://www.michigan.gov/mdch/0,1607,7-132-2945_5100-87572--,00.html, the Michigan Medicaid Provider Manual will govern. If there is a discrepancy or lack of guidance in the Michigan Medicaid Provider Manual, the Priority Health contract with Michigan Medicaid will govern. For Medical Supplies/DME/Prosthetics and Orthotics, please refer to the Michigan Medicaid Fee Schedule to verify coverage.*

IV. DESCRIPTION

Intracoronary brachytherapy (ICBT) is the process of delivering a controlled dose of radiation to the target arterial lesion with the goal of reducing the incidence of restenosis following an interventional procedure. Radiation, either gamma (γ) or beta (β), is delivered to the affected vessel via a catheter-based system or radioactive stent. This is the primary treatment for coronary in-stent restenosis. ICBT has been shown to suppress neointimal growth, thus preventing restenosis after balloon angioplasty and stenting. ICBT may inhibit negative vessel remodeling after balloon angioplasty.

Intracoronary brachytherapy includes several techniques to deliver radiation locally to coronary blood vessels by means of catheters or stents. It is used to reduce the rate of restenosis following revascularization of obstructed vessels by percutaneous coronary intervention (PCI).

Elastic recoil, excessive neointimal proliferation, and late contraction, or remodeling, have been suggested as the primary mechanisms of restenosis. Neointimal hyperplasia is a proliferative response to overstretch balloon injury, which mimics the scar tissue formation seen in other tissues during the healing process. Local ionizing radiation has significantly reduced neointimal proliferation in animal models. Presumably, the theoretical benefit of radiation resides in its killing effect of rapidly dividing smooth muscle cells and the inhibition of the recruitment and proliferation of adventitial myofibroblasts.

The objective of intracoronary brachytherapy is to prevent or further reduce the rate of coronary restenosis and thus improve overall health outcomes.

V. CODING INFORMATION

ICD-10 Codes that may apply:

I20.0 – I20.9	Angina pectoris
T82.599A – T82.599S	Other mechanical complication of unspecified cardiac and vascular devices and implants
T82.897A – T82.897S	Other specified complication of cardiac prosthetic devices, implants and grafts
T82.9xxA – T82.9xxS	Unspecified complication of cardiac and vascular prosthetic device, implant and graft
Z95.5	Presence of coronary angioplasty implant and graft
Z98.61	Coronary angioplasty status

CPT/HCPCS Codes:

92974	Transcatheter placement of radiation delivery device for subsequent coronary intravascular brachytherapy (List separately in addition to code for primary procedure – one of the following codes)
92978	Endoluminal imaging of coronary vessel or graft using intravascular ultrasound (IVUS) or optical coherence tomography (OCT) during diagnostic evaluation and/or therapeutic intervention including imaging supervision, interpretation and report; initial vessel (List separately in addition to code for primary procedure)
92937	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel

- 92938 Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (List separately in addition to code for primary procedure) *(Not Covered for Medicaid)*
- 92941 Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty, including aspiration thrombectomy when performed, single vessel
- 92943 Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; single vessel
- 92944 Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (List separately in addition to code for primary procedure) *(Not Covered for Medicaid)*
- 93454 Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation;
- 93455 Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography
- 93456 Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right heart catheterization
- 93457 Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography and right heart catheterization
- 77770 Remote after loading high dose rate radionuclide interstitial or intracavitary brachytherapy, includes basic dosimetry, when performed; 1 channel
- 77771 Remote after loading high dose rate radionuclide interstitial or intracavitary brachytherapy, includes basic dosimetry, when performed; 2-12 channels
- 77772 Remote after loading high dose rate radionuclide interstitial or intracavitary brachytherapy, includes basic dosimetry, when performed; over 12 channels
- C7516 Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, with

- endoluminal imaging of initial coronary vessel or graft using intravascular ultrasound (ivus) or optical coherence tomography (oct) during diagnostic evaluation and/or therapeutic intervention including imaging supervision, interpretation and report
- C7517 Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, with iliac and/or femoral artery angiography, non-selective, bilateral or ipsilateral to catheter insertion, performed at the same time as cardiac catheterization and/or coronary angiography, includes positioning or placement of the catheter in the distal aorta or ipsilateral femoral or iliac artery, injection of dye, production of permanent images, and radiologic supervision and interpretation
- C7518 Catheter placement in coronary artery(ies) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation, with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography with endoluminal imaging of initial coronary vessel or graft using intravascular ultrasound (ivus) or optical coherence tomography (oct) during diagnostic evaluation and/or therapeutic intervention including imaging, supervision, interpretation and report
- C7519 Catheter placement in coronary artery(ies) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation, with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography with intravascular doppler velocity and/or pressure derived coronary flow reserve measurement (initial coronary vessel or graft) during coronary angiography including pharmacologically induced stress
- C7520 Catheter placement in coronary artery(ies) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation, with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) includes intraprocedural injection(s) for bypass graft angiography with iliac and/or femoral artery angiography, non-selective, bilateral or ipsilateral to catheter insertion, performed at the same time as cardiac catheterization and/or coronary angiography, includes positioning or placement of the catheter in the distal aorta or ipsilateral femoral or iliac artery, injection of dye, production of permanent images, and radiologic supervision and interpretation
- C7521 Catheter placement in coronary artery(ies) for coronary angiography, including intraprocedural injection(s) for coronary angiography with right heart catheterization with endoluminal imaging of initial coronary vessel or graft using intravascular ultrasound (ivus) or optical coherence tomography (oct) during diagnostic evaluation and/or therapeutic intervention including imaging supervision, interpretation and report
- C7522 Catheter placement in coronary artery(ies) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation with right heart catheterization, with

intravascular doppler velocity and/or pressure derived coronary flow reserve measurement (initial coronary vessel or graft) during coronary angiography including pharmacologically induced stress

VI. REFERENCES

1. HAYES Alert. Intracoronary beta radiation for in-stent restenosis (VIII:7). Lansdale, PA: HAYES, Inc.; March 2002.
2. HAYES Alert. Long-term results of intracoronary radiation therapy (VII:2). Lansdale, PA: HAYES, Inc.; February 2004.
3. HAYES Medical Technology Directory. Drug-eluting stents for treatment of coronary artery disease (DRUG102.04). Lansdale, PA; HAYES, Inc.; August 2003.
4. HAYES Medical Technology Directory. Intracoronary Radiation Therapy (INTRO301.33). Lansdale, PA: HAYES, Inc.; November 2000.
5. Singh, H, MS, Yue, N, PhD, Azimi, A, MD, et al, "Relation of clinical success in coronary brachytherapy to dose." American Journal of Cardiology, Volume 94, Number 7, October 1 2004.

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