New Century Health

Cardio Policy:

Diagnostic Heart Catheterization

POLICY NUMBER UM CARDIO_1127	SUBJECT Diagnostic Heart Catheterization		DEPT/PROGRAM UM Dept	PAGE 1 OF 7
DATES COMMITTEE REVIEWED 07/22/11, 12/12/12, 08/22/13, 06/28/14, 05/15/15, 08/12/15, 11/23/16, 12/21/16, 10/10/17, 05/01/18, 02/13/19, 03/13/19, 12/11/19, 02/12/20, 08/12/20, 01/13/21, 04/14/21, 06/09/21, 08/11/21, 12/08/21, 01/12/22, 02/09/22	**APPROVAL DATE** February 2, 2022	**EFFECTIVE DATE** February 25, 2022	**COMMITTEE APPROVAL DATES** 07/22/11, 12/12/12, 08/22/13, 06/28/14, 05/15/15, 08/12/15, 11/23/16, 12/21/16, 10/10/17, 05/01/18, 02/13/19, 03/13/19, 12/11/19, 02/12/20, 08/12/20, 01/13/21, 04/14/21, 06/09/21, 08/11/21, 12/08/21, 01/12/22, 02/09/22	
PRIMARY BUSINESS OWNER: UM		**COMMITTEE/BOARD APPROVAL** Utilization Management Committee		
URAC STANDARDS HUM v8: UM 1-2; UM 2-1	**NCQA STANDARDS** UM 2		**ADDITIONAL AREAS OF IMPACT**	
CMS REQUIREMENTS	**STATE/FEDERAL REQUIREMENTS**		**APPLICABLE LINES OF BUSINESS** Commercial, Exchange, Medicaid	

I. PURPOSE

Indications for determining medical necessity for Diagnostic Heart Catheterization, including coronary angiography, left and right-sided hemodynamics, ascending aortography, and bypass graft visualization.

II. DEFINITIONS

Heart catheterization is the passage of a thin flexible tube (catheter) into the left or right heart systems via arteries or veins, respectively, for the purposes of hemodynamic measurements, acquisition of blood samples from specific locations, and/or the injection of radiopaque medium for the purposes of visualizing vascular anatomy. Coronary angiography is the passage of a catheter into the left side of the heart to diagnose or treat blockages of coronary arteries.

A. High Risk findings on Stress Test (>3% annual mortality rate) includes:

1. Severe resting or exercise left ventricular dysfunction (LVEF <35%)
2. High-risk treadmill score (score ≤11)
3. Stress-induced large perfusion defect (particularly if anterior)
4. Stress-induced multiple perfusion defects of moderate size
5. Large, fixed perfusion defect with LV dilation or increased lung uptake (thallium-201)

6. Stress-induced moderate perfusion defect with LV dilation or increased lung uptake (thallium-201).
7. Echocardiographic wall motion abnormality (involving 2 segments) developing at low dose of Dobutamine (≤10 mg/kg/min) or at a low heart rate (<120 beats/min).
8. Stress echocardiographic evidence of extensive ischemia

B. Intermediate-risk findings on Stress Test (1% to 3% annual mortality rate):

1. Mild/moderate resting left ventricular dysfunction (LVEF 35% to 49%)
2. Intermediate-risk treadmill score (score between -11 and -5)
3. Stress-induced moderate perfusion defect without LV dilation or increased lung intake (thallium-201).
4. Limited stress echocardiographic ischemia with a wall motion abnormality only at higher doses of Dobutamine involving less than or equal to 2 segments.

C. Low-risk findings on Stress Test (<1% annual mortality rate):

1. Low-risk treadmill score (Duke score 5)
2. Normal or small myocardial perfusion defect at rest or with stress
3. Normal stress echocardiographic wall motion or no change of limited resting wall motion abnormalities during stress

An appropriate diagnostic or therapeutic procedure is one in which the expected clinical benefit exceeds the risks or negative consequences of the procedure by a sufficiently wide margin such that the procedure is generally considered acceptable or reasonable care. The ultimate objective of AUC is to improve patient care and health outcomes in a cost–effective manner but is not intended to ignore ambiguity and nuance intrinsic to clinical decision making.

Appropriate Care - Median Score 7-9

May be Appropriate Care - Median Score 4-6

Rarely Appropriate Care - Median Score 1-3

III. POLICY

Indications for determining medical necessity for Heart Catheterization are:

A. Asymptomatic patients and evidence of high-risk findings on stress testing done within the last 3 months with any of the following scenarios (No cardiac catheterization within the last 12 months)

1. Exercise ECG testing documenting abnormal ST segment depression (greater than 1.0mm in multiple leads persistent and persistent on recovery for 5 minutes or greater **(AUC Score 8)**[1,3]
2. Ischemia at low threshold on stress-testing with or without an abnormal decrease in normal systolic blood pressure response during exercise. **(AUC Score 7)**[1,3]
3. Exercise induced ST segment elevation or ventricular tachycardia. **(AUC Score 7)**[1,3]
4. Myocardial perfusion scintigraphy demonstrating exercise perfusion defect in the anterior wall or more than one vascular region. **(AUC Score 7)**[1,3]
5. After coronary bypass surgery or percutaneous transluminal angioplasty when there is evidence of ischemia by non-invasive testing. **(AUC Score 7)**[1,3]
6. Before high-risk non-cardiac surgery in patients who have evidence of ischemia by non-invasive testing. **(AUC Score 6)**[1,3]

7. Evidence of prior myocardial infarction with normal left ventricular function at rest, and evidence of ischemia by non-invasive testing. **(AUC Score 7)[1,3]**
8. Left heart cath can be performed in an asymptomatic patient with CAD risk factors, with presence of new left ventricular dysfunction at rest (LVEF <45%) noted on studies other than stress imaging within the last 3 months. **(AUC Score 7)[1,3]**

B. Symptomatic patient with any of the following scenarios (No cardiac catheterization within the last 6 months); stress test must have been performed within the last 3 months):

1. Suspected CAD in a patient with angina pectoris who is unresponsive to guideline directed medical therapy (GDMT), interfering with the patient's occupation or the ability to perform usual activities with high or intermediate risk findings e.g., has a stress-induced reversible perfusion defect involving the anterior wall, or in more than one vascular region **(AUC Score 9)[1,3]**
2. Patient with CAD on GDMT and symptoms of angina with intermediate risk findings on non-invasive imaging stress test. **(AUC Score 7)[1,3]**
3. Patient with CAD on GDMT and symptoms of angina with high risk findings on non-invasive imaging stress test. **(AUC Score 9)[1,3]**
4. Patient with CAD on GDMT and symptoms of angina with significant stress induced LV dysfunction on non- invasive imaging stress test. **(AUC Score 8)[1,3]**
5. Patient with CAD on GDMT and symptoms of angina with discordant or equivocal findings on non-invasive imaging stress test. **(AUC Score 7)[1,3]**
6. Patient with CAD on GDMT and symptoms of angina with baseline resting LV dysfunction (<40%) with evidence of myocardial viability in dysfunctional segment on Cardiac PET/MRI/delayed Thallium uptake/Dobutamine Stress Echo. **(AUC Score 8)[1,3]**

C. Typical or Atypical chest pain of uncertain etiology with any of the following situations/conditions (No cardiac catheterization within the last 12 months); stress test must have been performed within the last 3 months):

1. When imaging stress test indicates that coronary artery disease may be present (see A2) **(AUC Score 8)[1,3]**
2. When there are associated symptoms or signs of abnormal left ventricular function (see F2) **(AUC Score 8)[1,3]**
3. When non-invasive tests are negative, but symptoms are severe, and management requires that significant coronary artery disease be excluded **(AUC Score 7)[1,3]**

D. Patient with history of Myocardial Infarction, PCI, or CABG with any of the following scenarios (No cardiac catheterization within the last 6 months); stress test must have been performed within the last 3 months):

1. Angina with Intermediate risk findings on non-invasive stress test. **(AUC Score 7)[1,3]**
2. Angina with High-risk findings on non-invasive stress test. **(AUC Score 9)[1,3]**

E. RIGHT heart cath for patient with suspected or with known Constrictive or Effusive/Constrictive Pericarditis after undergoing the following imaging tests: (no RIGHT heart cardiac catheterization within the last 6 months) (AUC Score 7)[1,3]

1. Transthoracic Echocardiogram
2. Cardiac MRI or MRA
3. Cardiac CT or CTA

F. Valvular heart disease with any of the following scenarios – LEFT and/or RIGHT heart cath (No cardiac catheterization within the last 6 months)

1. When valve surgery is being considered. **(AUC Score 7)[2,3]**
2. Left ventricular dysfunction out of proportion to the severity of valvular disease. **(AUC Score 8)[2,3]**
3. Symptomatic patient with (native or prosthetic mitral valve) severe mitral stenosis or severe mitral regurgitation with non -invasive imaging for valvular disease conflicting with clinical impression of severity. **(AUC Score 7)[2,3]**
4. Symptomatic patient with (native or prosthetic aortic valve) severe aortic stenosis or severe aortic regurgitation with non -invasive imaging for valvular disease conflicting with clinical impression of severity. **(AUC Score 8)[2,3]**
5. When reoperation for valve disease is being considered. Coronary angiography should be performed in patients who have not had this procedure for one year or greater. **(AUC Score 7)[2,3]**
6. Symptomatic patients with (native or prosthetic valve) mild or moderate mitral stenosis, or mitral regurgitation or aortic stenosis or aortic regurgitation with non-invasive imaging for valvular disease conflicting with clinical impression of severity. **(AUC Score 7)[2,3]**
7. Symptomatic patient with (native or prosthetic aortic valve) equivocal or low gradient aortic stenosis with or without Dobutamine challenge test and with non -invasive imaging for valvular disease conflicting with clinical impression of severity. **(AUC Score 8)[2,3]**

G. Other conditions where coronary angiography is considered medically necessary (No cardiac catheterization within the last 6 months)

1. Patients with cardiac risk factors that are being actively treated who have not yet a known CAD diagnosis who present with symptoms typical for angina pectoris occurring at rest or with minimal activity regardless of EKG findings. **(AUC Score 7)**
2. New onset or increase in severity and frequency of stable angina pectoris in a patient with CAD, within the past two months, despite GDMT (includes angina at rest) **(AUC Score 8)[1,3]**
3. Prinzmetal's or variant angina (pain experienced at rest with ST elevation) on GDMT **(AUC Score 8)[1,3]**
4. Symptomatic patient with no prior diagnosis of CAD presenting with new EKG findings suggestive of ischemia. **(AUC Score 7)[1,3]**
5. Disease affecting the aorta and coronary arteritis in which coronary artery involvement is suspected. **(AUC Score 8)[2,3]**
6. Presence of left ventricular failure without obvious cause and adequate left ventricular systolic function. **(AUC Score 8)[2,3]**
7. Hypertrophic cardiomyopathy and uncontrolled angina pectoris by medical therapy or patients who are to undergo surgery or alcohol ablation treatment for outflow obstruction. **(AUC Score 8)[2,3]**
8. When patients are to undergo other cardiac surgical procedures, such as pericardiectomy. **(AUC Score 8)[2,3]**
9. Preoperative cardiac assessment in patients with ≥3 CAD risk factors, <4METS functional capacity with prior non-invasive tests and undergoing high risk non-cardiac surgery. **(AUC Score 7)[2,3]**
10. As a preoperative coronary assessment of donors and recipient prior organ transplant. **(AUC Score 7)[2,3]**

H. Indications for determining medical necessity for RIGHT heart cath are (No prior heart Cath performed within the last 6 months)

1. Patients with known history of congestive heart failure **(AUC Score 7)[2,3]**
2. Patients with cardiomyopathy (EF< 40%) with or without heart failure and or for re-evaluation due to change in clinical status or to guide therapy. **(AUC Score 7)[2,3]**
3. Patients with known or suspected valvular heart disease. **(AUC Score 8)[2,3]**
4. Patients with known or suspected intracardiac shunt. **(AUC Score 8)[2,3]**
5. Patients with recent myocardial infarction in presence of LVEF<45% **(AUC Score 7)[2,3]**
6. Patients with worsening symptoms of pulmonary hypertension or is suspected to have Pulmonary Hypertension (Pulmonary Artery Systolic Pressure >40 mm Hg) on echocardiogram. **(AUC Score 8)[2,3]**
7. Patients at least 6 months post-LVAD placement as a bridge to transplant in whom pulmonary hypertension existed (PVR >2.5 Wood units) or mean PA pressure >20 mmHg on RHC performed prior to LVAD implant **(AUC Score 8)[4]**

I. Indications for determining medical necessity for Ascending Aortography are:

1. Evaluation of aortic root dilatation in patients with severe aortic stenosis and regurgitation prior to valve surgery **(AUC Score 7)[1,2,3]**
2. Evaluation of aortic root, ascending aortic aneurysm prior to repair **(AUC Score 7)[1,2,3]**
3. Evaluation central shunts, Coarctation and great vessels **(AUC Score 7)[1,2,3]**
4. Bypass graft identification at the time of left heart cath **(AUC Score 7)[1,2,3]**

Limitations

A. Requests for services that are part of a surveillance protocol for patients who are involved in a clinical trial are considered out of scope (OOS) for New Century Health and cannot be reviewed.

IV. PROCEDURE

A. In order to review a request for medical determination, the following documents must be submitted for review
   1. Cardiologist note that prompted request
   2. Recent EKG (within 10 days) if applicable
   3. Nuclear stress test Coronary CT Angiogram or Coronary Calcium Score report
   4. Most recent echo

B. Primary codes appropriate for this service:
   1. Left heart cath only:

      93452 – left heart cath for hemodynamic measurements only; 93454 – left heart cath with HD measurements and coronary angiography; 93458 – left heart cath with HD measurements and left ventriculography.

   2. Including Right Heart Cath:

      93461 – (L/RHC with Bypass and LV angiogram);

      93547 – (L/RHC with Bypass w/o LV angiogram);

93463 – Pharmacologic agent administration (e.g., inhaled nitric oxide, intravenous infusion of nitroprusside, nitroglycerin, dobutamine, milrinone, or other agent other than contrast agent and sedation) including assessing hemodynamic measurements before, during, after and repeat pharmacologic agent administration, when performed;

93530 – Right heart catheterization, for congenital cardiac anomalies;

93531 – Combined R/L heart catheterization for congenital cardiac anomalies;

93532 – Combined R/L heart catheterization and transseptal left heart catheterization through intact septum for congenital cardiac anomalies;

93533 – Combined R/L heart catheterization and transseptal left heart catheterization through existing septal opening, for congenital cardiac anomalies;

93563 – Selective coronary angiography during congenital heart catheterization;

93564 – Injection procedure during cardiac catheterization for selective opacification of aortocoronary venous or arterial bypass graft(s) congenital heart catheterization;

93565 – Injection procedure during cardiac catheterization; for selective left ventricular or left atrial angiography;

93566 – Injection procedure during cardiac catheterization for selective right ventricular or right atrial angiography;

93567 – Injection procedure during cardiac catheterization for supravalvular aortography;
93568 – Injection procedure during cardiac cath for pulmonary angiography;

93451 – Right heart catheterization including measurement(s) of oxygen saturation and cardiac output, when performed;

93453 – Combined R/L heart catheterization including left ventriculography;

93460 – Catheter placement in coronary artery(s) for coronary angiography, with right and left heart catheterization including left ventriculography, when performed.

3. Including bypass grafts:

   93455 – Catheter placement in coronary artery(s) for coronary angiography, bypass graft angiography; 93456 – Catheter placement in coronary artery(s) for coronary angiography with right heart catheterization, 93457 – Catheter placement in coronary artery(s) for coronary angiography bypass graft angiography and right heart catheterization; 93459 – with left heart catheterization, including left ventriculography internal mammary, free arterial and venous grafts

4. 93567 – Ascending aortography

V. APPROVAL AUTHORITY

A. Review – Utilization Management Department

B. Final Approval – Utilization Management Committee

VI. ATTACHMENTS

A. None

VII. REFERENCES

1. Manesh R. Patel MD, FACC, et al; ACCF/SCAI/AATS/AHA/ASE/ASNC/HFSA/HRS/SCCM/ SCCT/SCMR/STS. 2012 Appropriate Use Criteria for Diagnostic Catheterization. A Report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, Society for Cardiovascular Angiography and Interventions, American Association for Thoracic Surgery, American Heart Association, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Failure Society of America, Heart Rhythm Society, Society of Critical Care Medicine, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and Society of Thoracic Surgeons. Journal of the American College of Cardiology. May 2012. Volume 59, Issue 22, Pages 1995-2027.
2. Michael J. Wolk MD, MACC, et al. ACCF/AHA/ASE/ASNC/HFSA/HRS/SCAI/SCCT/SCMR/STS. 2013 Multimodality Appropriate Use Criteria for the Detection and Risk Assessment of Stable Ischemic Heart Disease. a report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, American Heart Association, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Failure Society of America, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and Society of Thoracic Surgeons. Journal of the American College of Cardiology. Feb 2014. Volume 63, Issue 4, Pages 380-406.
3. Robert C. Hendel MD, FACC, FAHA, et al. Appropriate use of cardiovascular technology: 2013 ACCF appropriate use criteria methodology update: a report of the American College of Cardiology Foundation appropriate use criteria task force. Journal of the American College of Cardiology. March 2013, Volume 61, Issue 12, Pages 1305-1317.
4. Utility of Routine Right Heart Catheterization after LVAD Implantation; D. Spiegelstein,2 C.M. Rosner,1 S.S. Desai,1 L.G. Edwards,1 T. Elliott,1 N.A. Burton,2 A.J. Rongione.2 1Heart Failure/Heart Transplant, Inova Heart and Vascular Institute at Inova Fairfax Hospital, Falls Church, VA; The Journal of Heart and Lung Transplantation, Vol 32, No 4S, April 2013 S236.
5. NCQA UM 2022 Standards and Elements.