



CIGNA MEDICAL COVERAGE POLICY

The following Coverage Policy applies to all health benefit plans administered by CIGNA Companies including plans formerly administered by Great-West Healthcare, which is now a part of CIGNA.

Subject **Cardiac Rehabilitation (Phase II Outpatient)**

Effective Date 3/15/2011
Next Review Date 3/15/2012
Coverage Policy Number 0073

Table of Contents

Coverage Policy	1
General Background	2
Coding/Billing Information	7
References	8
Policy History	13

Hyperlink to Related Coverage Policies

Physical Therapy

INSTRUCTIONS FOR USE

Coverage Policies are intended to provide guidance in interpreting certain **standard** CIGNA HealthCare benefit plans. Please note, the terms of a customer's particular benefit plan document [Group Service Agreement (GSA), Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a customer's benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a customer's benefit plan document **always supercedes** the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. Proprietary information of CIGNA. Copyright ©2011 CIGNA

Coverage Policy

Under many benefit plans, coverage of cardiac rehabilitation (CR) is subject to the terms, conditions and limitations of the Short-Term Rehabilitative Therapy benefit as described in the applicable plan's schedule of copayments. Many benefit plans include a maximum allowable benefit for duration of treatment or number of visits. When the maximum allowable benefit is exhausted, coverage will no longer be provided, even if the medical necessity criteria described below are met. Please refer to the applicable benefit plan document to determine benefit availability and the terms and conditions of coverage.

If benefit coverage is available for cardiac rehabilitation, then the following conditions apply.

CIGNA covers an electrocardiographically-monitored program of outpatient cardiac rehabilitation as medically necessary within six months of ANY of the following events when it is individually prescribed by a physician AND a formal exercise stress test is completed following the event and prior to the initiation of the program:

- acute myocardial infarction (MI)
- coronary artery bypass grafting (CABG)
- percutaneous coronary vessel remodeling
- valve replacement or repair
- heart transplant

- coronary artery disease (CAD) associated with chronic stable angina that has failed to respond adequately to pharmacotherapy and is interfering with the ability to perform age-related activities of daily living and/or impairing functional abilities
- heart failure that has failed to respond adequately to pharmacotherapy and is interfering with the ability to perform age-related activities of daily living and/or impairing functional abilities

When medical necessity for outpatient cardiac rehabilitation has been established, the following coverage guidelines by risk * stratification apply based upon the metabolic equivalents (METs) achieved in the qualifying formal exercise stress test that was performed:

- high risk: up to a total of 36 sessions
- intermediate risk: up to a total of 24 sessions
- low risk: up to a total of 6 sessions

*See pages four and five in the General Background for definitions of risk categories

CIGNA covers additional cardiac rehabilitation services as medically necessary, based on the above listed criteria, when the individual has ANY of the following conditions:

- another documented myocardial infarction or extension of initial infarction
- another cardiovascular surgery or angioplasty
- new evidence of ischemia on an exercise test, including thallium scan
- new, clinically significant coronary lesions documented by cardiac catheterization

CIGNA does not cover cardiac rehabilitation programs without electrocardiographic (ECG) monitoring or attendant physician supervision, because they are considered not medically necessary. In addition, non-ECG monitored cardiac rehabilitation programs are specifically excluded under many medical benefit plans.

Phase III or IV cardiac rehabilitation programs are not covered under many benefit plans because they are education and training in nature and not medically necessary. Services that are education and training in nature are specifically excluded under many benefit plans. Please refer to the applicable benefit plan language for the terms and conditions of coverage.

General Background

The 2005 American Heart Association/American Association of Cardiovascular and Pulmonary Rehabilitation (AHA/AACVPR) scientific statement defines cardiac rehabilitation (CR) as coordinated, multifaceted interventions designed to optimize a cardiac patient's physical, psychological, and social functioning, in addition to stabilizing, slowing, or even reversing the progression of the underlying atherosclerotic processes, thereby reducing morbidity and mortality (Leon, et al., 2005).

The candidates for CR/secondary prevention programs are patients who recently have had a myocardial infarction (MI); have undergone coronary artery bypass graft surgery (CABG) or percutaneous coronary interventions; heart transplant candidates or recipients; or patients with stable chronic heart failure, peripheral arterial disease with claudication, or other forms of cardiovascular disease or cardiac surgical procedures such as valvular heart disease (Leon, et al., 2005).

CR/secondary prevention programs currently include baseline patient assessments, nutritional counseling, aggressive risk-factor management (i.e., lipids, hypertension, weight, diabetes, and smoking), psychosocial and vocational counseling, and physical activity counseling and exercise training. Additionally, CR programs include the appropriate use of cardioprotective drugs that have evidence-based efficacy for secondary prevention (Leon, et al., 2005).

The early CR programs initiated mobilization after a myocardial infarction and were referred to as Phase I or inpatient CR. The goal was to condition the patient to safely carry out activities of daily living following

discharge. Such programs entailed prescribing activity in rigid steps with successively higher metabolic equivalents (METs). Comprehensive CR programs eventually grew to include four phases (Goroll and Mulley; 2009; Thompson, 2007):

- **Phase I (Inpatient):** Inpatient rehabilitation, usually lasting for the duration of hospitalization for an acute coronary event or surgery. It emphasizes a gradual, progressive approach to exercise and an education program that helps the patient understand the disease process, the rehabilitation process, and initial preventive efforts to slow the progression of disease. Submaximal exercise testing before hospital discharge is done to provide important prognostic information and help restore patient confidence.
- **Phase II (Outpatient Electrocardiographically-Monitored):** Multifaceted outpatient rehabilitation, lasting from hospital discharge to 2–12 weeks later. Phase II CR emphasizes safe physical activity to improve conditioning with continued behavior modification aimed at smoking cessation, weight loss, healthy eating, and other factors to reduce disease risk (see below).
- **Phase III (Supervised):** Supervised rehabilitation, lasting 6–12 months. Establishes a prescription for safe exercise that can be performed at home or in a community service facility, such as a senior center, and continues to emphasize risk-factor reduction.
- **Phase IV (Maintenance/Follow-Up):** This is usually an indefinite program. The goal is to encourage lifelong adherence to the healthy habits established during Phase III. Follow-up visits can occur at 6–12 month intervals. Blood pressure and pulse measurement, serum lipid levels, and even repeat maximal exercise tolerance tests can provide useful feedback to the patient and indicate areas that may require lifestyle changes to minimize coronary.

Phase II (Outpatient Electrocardiographically-Monitored) Cardiac Rehabilitation (CR)

Phase II CR is described by the U.S. Public Health Service as consisting of “comprehensive, long term programs involving medical evaluation, prescribed exercise, cardiac risk factor modification, education, and counseling.” These programs “are designed to limit the physiologic and psychological effects of cardiac illness, reduce the risk of sudden death or reinfarction, control cardiac symptoms, stabilize or reverse the atherosclerotic process, and enhance the psychosocial and vocational status of selected patients.” CR programs aim to reduce subsequent cardiovascular related morbidity and mortality. Phase II CR refers to outpatient, medically supervised programs that provide electrocardiogram (ECG) monitoring. The programs are typically initiated within one to three weeks after hospital discharge and generally administered within the six months following discharge from the hospital (Wenger, et al., 1995).

It is recommended that patients referred to CR undergo a symptom-limited exercise tolerance/stress test before entering the CR program. The exercise test is required to exclude important symptoms, ischemia, or arrhythmias that might require other interventions before exercise training. The exercise test also serves to establish baseline exercise capacity and to determine maximum heart rate for use in preparing an exercise prescription. These tests are generally done with the patient on their usual medications to mimic the heart rate response likely to occur during exercise training. Maximal heart rate is usually determined by an exercise stress test using the form of exercise anticipated (e.g., treadmill testing for a walking/jogging program or bicycle ergometer testing for a cycling program). Bicycle ergometry should be considered for individuals with balance deficits, mild neurologic impairment, or orthopedic limitations (Goroll and Mulley, 2009; Davis, 2008; Thompson, 2007; Ades and Hambrecht, 2007).

The prescribed activity level remains relatively low with Phase II CR. Exercise intensity is regulated by monitoring peak heart rate, which should not exceed the level achieved during the pre-discharge submaximal exercise test. The exercise training modalities used during Phase II, as in Phase I, usually consist of walking and stationary bicycling. The patient and family are educated about coronary risk (Goroll and Mulley; 2009).

Most Phase II exercise programs consist of three sessions per week for 12 weeks. However, the frequency and duration may be impacted by the level of cardiac risk stratification and the degree of limitation of exercise during the exercise stress test prior to initiation of rehabilitation. Risk stratification is used to identify patients at risk for death or reinfarction and to provide guidelines for the rehabilitative process.

The exercise program design is supervised by a physician, monitored by electrocardiographic equipment to ensure patient safety and conducted by professionals trained in emergency treatment, in facilities with emergency equipment available. Patients are evaluated to determine eligibility, risk category and exercise program. Exercise prescriptions are based on risk factors, and exercise capacity measured by heart rate and oxygen consumption. Exercise training is the principal component of the program, as it results in increased peak exercise capacity, usually expressed in METS. The MET is the total oxygen requirement of the body, with one MET equal to 3.5 milliliters of oxygen consumed per kilogram of body weight per minute. Exercise training is aimed to improve MET capacity, resulting in improved oxygen delivery and extraction, by exercising skeletal muscles, decreasing the cardiovascular requirements of exercise and increasing the amount of work that can be done before ischemia (i.e., blood deficiency) occurs.

Prior to initiating CR, it is recommended there be documentation that the patient underwent exercise stress testing and did not experience **ANY** of the following:

- severe dyspnea at low exercise workload (< 5 METS)
- angina at low exercise workload (< 5 METS)
- heart rate > 120 beats per minute
- malignant ventricular arrhythmias
- ST segmental changes at low exercise workload (< 5 METS)
- significant ischemia at low work rates (< 5 METS)
- decreased systolic blood pressure during exercise

Contraindications to CR include the following (Ades and Hambrecht, 2007):

- marked progressive worsening of exercise tolerance suggesting an acute pathologic process
- worsening of dyspnea during exercise over the previous three to five days
- uncontrolled diabetes
- acute systemic illness or fever
- recent embolism
- acute pericarditis
- moderate to severe aortic stenosis
- MI within three weeks
- new onset of atrial fibrillation
- ventricular dysfunction, with a history of previous heart illness prior to a recent cardiac event
- acute thrombophlebitis
- unstable ischemia
- uncontrolled arrhythmias
- decompensated congestive heart failure (CHF)

Cardiac Risk Classification

The medically necessary frequency and duration of CR is determined by the individual's level of cardiac risk stratification based on the exercise stress test (Ades and Hambrecht, 2007; Wenger, et al., 1995).

High-Risk Patients

- High-risk patients are defined as having **ANY** of the following:
 - exercise test limited to less than or equal to five metabolic equivalents (METS)
 - marked exercise induced ischemia, as indicated by either anginal pain or 2 mm or more ST depression by ECG, or symptoms such as shortness of breath related to cardiac ischemia
 - severely depressed left ventricular function (i.e., ejection fraction less than or equal to 30%)
 - resting complex ventricular arrhythmia
 - ventricular arrhythmia appearing or increasing with exercise or occurring in the recovery phase of stress testing
 - decrease in systolic blood pressure of 15–20 mm Hg or more with exercise

- recent MI, less than six months, that was complicated by serious ventricular arrhythmia
 - survivor of sudden cardiac arrest
 - shock or CHF during a recent (i.e., less than three months) MI
- Program description for high-risk patients:
 - up to 36 sessions (e.g., 3 times/week for 12 weeks) of supervised exercise with continuous telemetry monitoring
 - educational program for risk factor/stress reduction
 - creation of an individual outpatient exercise program that can be self-monitored and maintained
 - If no clinically significant arrhythmia is documented during the first three weeks of the program, the provider may have the patient complete the remaining portion without telemetry monitoring.

Intermediate-Risk Patients

- Intermediate-risk patients are defined as having **ANY** of the following:
 - exercise test limited to six to nine METS
 - ischemic ECG response to exercise of less than 2 mm of ST depression
 - uncomplicated MI, CABG, or angioplasty **AND** a post-cardiac event maximal functional capacity of eight METS or less on ECG exercise test
- Program description for intermediate-risk patients:
 - up to 24 sessions of exercise training without continuous ECG monitoring
 - geared to define an ongoing exercise program that is self-administered

Low-risk patients are defined as having exercise test greater than nine METS.

- Program description for low-risk patients:
 - up to six one-hour sessions involving risk-factor reduction education and supervised exercise to show safety and define a home program (e.g., three times/week for a total of two weeks or two sessions per week for three weeks)

Centers for Medicare and Medicaid Services (CMS)

CMS currently covers CR for the following indications (CMS, 2010):

- a documented acute myocardial infarction (AMI) within the preceding 12 months
- CABG surgery
- stable angina pectoris
- heart valve replacement/repair
- percutaneous transluminal coronary angioplasty (PTCA) or coronary artery stenting
- heart or heart/lung transplant.

CMS lists the following cardiac rehabilitation program requirements:

- Physician-prescribed exercise each day cardiac rehabilitation items and services are furnished.
- Cardiac risk factor modification, including education, counseling, and behavioral intervention at least once during the program, tailored to individual needs.
- Psychosocial assessment; outcomes assessment; and an individualized treatment plan detailing how components are utilized for each individual.

In 2010, CMS updated criteria on the frequency and duration of cardiac rehabilitation services stating that cardiac rehabilitation items and services must be furnished in a physician's office or a hospital outpatient setting.

All settings must have a physician immediately available and accessible for medical consultations and emergencies at all time items and services are being furnished under the program. Cardiac rehabilitation program sessions are limited to a maximum of two 1-hour sessions per day for up to 36 sessions over up to 36 weeks, with the option for an additional 36 sessions over an extended period of time if approved by the Medicare contractor.

Literature Review

Clark et al. (2005), from the University of Alberta Evidence-based Practice Center for the AHRQ Technology Assessment Program, conducted a meta-analysis of coronary heart disease management programs. The purpose of the study was to determine the effectiveness of secondary cardiac prevention programs with and without exercise components. The interventions tested in the trials, and frequency and duration of the interventions, varied substantially among the studies. The studies enrolled highly selected patient populations. After reviewing 46 randomized controlled trials in 188,821 patients with coronary artery disease, the authors concluded that secondary prevention programs for patients already diagnosed with cardiac disease improved processes of care, enhanced quality of life/function status, reduced recurrent myocardial infarctions, reduced hospitalizations, and reduced long-term mortality in patients with established CAD.

Professional Societies/Organizations

The AACVPR/ACC/AHA 2007 performance measures on CR for referral to CR/secondary prevention services were updated in 2010. The 2010 document updates the two measures that describe the opportunities to improve referrals to outpatient CR and CR patient referral from an inpatient setting. The updated performance measures state all patients hospitalized with a primary diagnosis of an acute myocardial infarction (MI) or chronic stable angina (CSA), or who during hospitalization have undergone coronary artery bypass graft (CABG) surgery, a percutaneous coronary intervention (PCI), cardiac valve surgery, or cardiac transplantation are to be referred to an early outpatient cardiac rehabilitation/secondary prevention (CR) program. The performance measures state all patients evaluated in an outpatient setting who within the past 12 months have experienced an acute MI, CABG surgery, a PCI, cardiac valve surgery, or cardiac transplantation, or who have CSA and have not already participated in an early outpatient cardiac rehabilitation/secondary prevention (CR) program for the qualifying event/diagnosis are to be referred to such a program. The authors noted that there is growing evidence for the benefits of CR in persons with other cardiovascular conditions, including heart failure and peripheral vascular disease. Pooled data from randomized clinical trials of CR demonstrate a mortality benefit of approximately 20–25%. The patients who are appropriate for entry into a CR program include persons 18 years of age or older who, during the previous year, have had one or more of the qualifying diagnoses previously noted. The period for early outpatient CR typically begins 1–3 weeks after the index cardiovascular event and lasts up to 3–6 months (Thomas, et al., 2007, 2010).

In 2007, the AHA and the AACVPR updated their 2000 scientific statement addressing the core components of CR/secondary prevention programs. The update presents the current information on the evaluation, interventions, and expected outcomes in each of the core components of CR/secondary prevention programs which is in agreement with the 2006 AHA/American College of Cardiology (ACC) secondary prevention guidelines, including baseline patient assessment, nutritional counseling, risk factor management (lipids, blood pressure, weight, diabetes mellitus, and smoking), psychosocial interventions, and physical activity counseling and exercise training. Symptom-limited exercise testing is strongly recommended prior to participation in an exercise-based CR program. The evaluation may be repeated as changes in clinical condition warrant. Test parameters should include assessment of heart rate and rhythm, signs, symptoms, ST-segment changes, hemodynamics, perceived exertion, and exercise capacity. On the basis of patient assessment and the exercise test if performed, it is recommended to risk stratify the patient to determine the level of supervision and monitoring required during exercise training (Balady, et al., 2007). There has been no update to this guideline since 2007.

The 2007 ACC/AHA/Society for Cardiovascular Angiography and Interventions (SCAI) focused update of the 2005 practice guideline for percutaneous coronary intervention recommends medically supervised CR programs for high-risk patients (e.g., recent acute coronary syndrome or revascularization, heart failure). For all patients, it is recommended that risk be assessed with a physical activity history and/or an exercise test to guide prescription. For all patients, encouraging 0–60 min. of moderate-intensity aerobic activity is recommended, such as brisk walking on most or all-days of the week, supplemented by an increase in daily lifestyle activities (e.g., walking breaks at work, gardening, and household work). Encouraging resistance training two days per week may be reasonable (King, et al., 2008). There has been no update to this guideline since 2007.

The 2007 ACC/AHA guideline for the management of patients with unstable angina/non-ST-elevation MI recommends CR/secondary prevention programs, when available, for patients with unstable angina/non ST-elevation MI, particularly those with multiple modifiable risk factors and those with moderate- to high-risk patients in whom supervised or monitored exercise training is warranted. The patient's risk after unstable angina/non-ST-elevation MI should be assessed on the basis of an in-hospital determination of risk. A physical activity history or an exercise test to guide initial prescription is beneficial (Anderson, et al., 2007). There has been no update to this guideline since 2007.

The 2007 ACC/AHA focused update of the 2004 practice guideline for the management of patients with ST-elevation MI recommends medically supervised programs (CR) for high-risk patients (e.g., recent acute coronary syndrome or revascularization, heart failure). For all patients, it is recommended that risk be assessed with a physical activity history and/or an exercise test to guide prescription. For all patients, encouraging 30–60 minutes of moderate-intensity aerobic activity is recommended, such as brisk walking on most or all days of the week supplemented by an increase in daily lifestyle activities (e.g., walking breaks at work, gardening, and household work). Encouraging resistance training 2 days per week may be reasonable (Antman, et al., 2008). There has been no update to this guideline since 2007.

The 2007 ACC/AHA focused update of the 2002 practice guideline for the management of patients with chronic stable angina recommends medically supervised programs (CR) for at-risk patients (e.g., recent coronary syndrome or revascularization, heart failure). It is recommended that the patient's risk should be assessed with a physical activity history. Where appropriate, an exercise test is useful to guide the exercise prescription. Physical activity of 30–60 minutes, seven days per week (minimum five days per week) is recommended. All patients should be encouraged to obtain 30–60 minutes of moderate-intensity aerobic activity, such as brisk walking, on most, preferably all, days of the week, supplemented by an increase in daily activities (such as walking breaks at work, gardening, or household work) (Fraker, et al., 2007). There has been no update to this guideline since 2007.

The ACC/AHA heart failure practice guideline for the evaluation and management of heart failure recommends that exercise training should be considered for all stable outpatients with chronic heart failure who are able to participate in the protocols needed to produce physical conditioning (Hunt, et al., 2005). There has been no update to this guideline since 2005.

The ACC/AHA practice guideline for CABG recommends that CR should be offered to all eligible patients after CABG (Eagle, et al., 2004). There has been no update to this guideline since 2004.

Summary

Cardiac rehabilitation (CR) is an important component of the comprehensive care of individuals with cardiovascular disease. CR is included in practice guidelines by several national and international agencies/societies. Clinical evidence has demonstrated that CR is beneficial following acute myocardial infarction, coronary artery bypass graft, stable angina pectoris, heart valve replacement/repair, percutaneous transluminal coronary angioplasty, heart or heart/lung transplant and for patients with stable chronic heart failure. Meta-analysis of CR programs has concluded that CR enhances quality of life and function status, reduces hospitalizations, reduces recurrent myocardial infarctions, and reduces long-term mortality in patients with established coronary heart disease. The appropriate frequency and duration of cardiac rehabilitation is impacted by the level of cardiac risk stratification and the degree of limitation of exercise during the exercise stress test prior to initiation of rehabilitation.

Coding/Billing Information

Note: This list of codes may not be all-inclusive.

Covered when medically necessary:

CPT®* Codes	Description
----------------	-------------

93798	Physician services for outpatient cardiac rehabilitation; with continuous ECG monitoring (per session)
-------	--

HCPCS Codes	Description
S9472	Cardiac rehabilitation program, non-physician provider, per diem
G0422 [†]	Intensive cardiac rehabilitation, with or without continuous ECG monitoring with exercise, per session
G0423 [†]	Intensive cardiac rehabilitation, with or without continuous ECG monitoring without exercise, per session

†Note: Coverage of these services is limited to ECG monitored cardiac rehabilitation programs. Cardiac rehabilitation programs that are not electrocardiographically monitored are considered not medically necessary and therefore are not covered. In addition, these programs are specifically excluded under many medical benefit plans.

ICD-9-CM Diagnosis Codes	Description
410.00-410.92	Acute myocardial infarction
412	Old myocardial infarction
413.9	Other and unspecified angina pectoris
414.00-414.07	Coronary atherosclerosis
V15.1	Personal history of surgery to heart and great vessels, presenting hazards to health
V42.1	Heart replaced by transplant
V42.2	Organ or tissue replaced by transplant; Heart valve
V43.3	Heart valve replaced by other means
V45.81	Postprocedural aortocoronary bypass status
V45.82	Postprocedural percutaneous transluminal coronary angioplasty status

Not Medically Necessary/Not Covered:

CPT* Codes	Description
93797	Physician services for outpatient cardiac rehabilitation; without continuous ECG monitoring (per session)

ICD-9-CM Diagnosis Codes	Description
	All codes

***Current Procedural Terminology (CPT®) © 2010 American Medical Association: Chicago, IL.**

References

1. Ades PA, Hambrecht R. Cardiac rehabilitation and secondary prevention. In: Topol EJ, editor. Textbook of cardiovascular medicine. 3rd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2007. Ch 13.
2. Ades PA, Coello CE. Effects of exercise and cardiac rehabilitation on cardiovascular outcomes. Med Clin North Am. 2000;84(1):251–65.

3. American Heart Association (AHA). Cardiac rehabilitation. Accessed January 24, 2011. Available at URL address: <http://www.americanheart.org/presenter.jhtml?identifier=4490>
4. Anderson JL, Adams CD, Antman EM, Bridges CR, Califf RM, Casey DE Jr, et al; American College of Cardiology; American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina/Non ST-Elevation Myocardial Infarction); American College of Emergency Physicians; Society for Cardiovascular Angiography and Interventions; Society of Thoracic Surgeons; American Association of Cardiovascular and Pulmonary Rehabilitation; Society for Academic Emergency Medicine. ACC/AHA 2007 guidelines for the management of patients with unstable angina/non ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina/Non ST-Elevation Myocardial Infarction): developed in collaboration with the American College of Emergency Physicians, the Society for Cardiovascular Angiography and Interventions, and the Society of Thoracic Surgeons: endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation and the Society for Academic Emergency Medicine. *Circulation*. 2007 Aug 14;116(7):e148-304. Epub 2007 Aug 6.
5. Antman EM, Hand M, Armstrong PW, Bates ER, Green LA, Halasyamani LK, et al; 2004 Writing Committee Members, Anbe DT, Kushner FG, Ornato JP, Jacobs AK, Adams CD, Anderson JL, et al. 2007 Focused Update of the ACC/AHA 2004 Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines: developed in collaboration With the Canadian Cardiovascular Society endorsed by the American Academy of Family Physicians: 2007 Writing Group to Review New Evidence and Update the ACC/AHA 2004 Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction, Writing on Behalf of the 2004 Writing Committee. *Circulation*. 2008 Jan 15;117(2):296-329. Epub 2007 Dec 10.
6. Antman EM, Anbe DT, Armstrong PW, Bates ER, Green LA, Hand M et al. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction; A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Revise the 1999 Guidelines for the Management of patients with acute myocardial infarction). *J Am Coll Cardiol*. 2004 Aug 4;44(3):E1-E211.
7. Balady GJ, Williams MA, Ades PA, Bittner V, Comoss P, Foody JM, et al.; American Heart Association Exercise, Cardiac Rehabilitation, and Prevention Committee, the Council on Clinical Cardiology; American Heart Association Council on Cardiovascular Nursing; American Heart Association Council on Epidemiology and Prevention; American Heart Association Council on Nutrition, Physical Activity, and Metabolism; American Association of Cardiovascular and Pulmonary Rehabilitation. Core components of cardiac rehabilitation/secondary prevention programs: 2007 update: a scientific statement from the American Heart Association Exercise, Cardiac Rehabilitation, and Prevention Committee, the Council on Clinical Cardiology; the Councils on Cardiovascular Nursing, Epidemiology and Prevention, and Nutrition, Physical Activity, and Metabolism; and the American Association of Cardiovascular and Pulmonary Rehabilitation. *Circulation*. 2007 May 22;115(20):2675-82.
8. Briffa TG, Eckermann SD, Griffiths AD, Harris PJ, Heath MR, Freedman SB, et al. Cost-effectiveness of rehabilitation after an acute coronary event: a randomised controlled trial. *Med J Aust*. 2005 Nov 7;183(9):450-5.
9. Centers for Medicare and Medicaid Services (CMS). NCD for Cardiac Rehabilitation Programs (20.10). Effective April 5, 2010. Accessed January 24, 2011. Available at URL address: http://www.cms.hhs.gov/mcd/index_list.asp?list_type=ncd#PC
10. Centers for Medicare and Medicaid Services (CMS). Decision Memo for Cardiac Rehabilitation Programs (CAG-00089R2). February 22, 2010. Accessed January 24, 2011. Available at URL address: <http://www.cms.gov/mcd/viewdecisionmemo.asp?id=241>

11. Centers for Medicare and Medicaid Services (CMS). Medicare Claims Processing Manual. Publication 100-04. Chapter 32. 2010. Accessed January 24, 2011. Available at URL address: <http://www3.cms.gov/manuals/downloads/clm104c32.pdf>
12. Clark AM, Hartling L, Vandermeer B, McAlister FA. Meta-analysis: secondary prevention programs for patients with coronary artery disease. *Ann Intern Med.* 2005 Nov 1;143(9):659–72.
13. Davis AM. Cardiac rehabilitation. In: Frontera WR, Silver JK, Rizzo Jr TD. *Essential of physical and rehabilitation musculoskeletal disorders, pain, and rehabilitation.* 2nd ed. Philadelphia, PA. Elsevier Saunders. 2008. Ch 112.
14. Eagle KA, Guyton RA, Davidoff R, Edwards FH, Ewy GA, Gardner TJ, et al. American College of Cardiology; American Heart Association. ACC/AHA 2004 guideline update for coronary artery bypass graft surgery: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Update the 1999 Guidelines for Coronary Artery Bypass Graft Surgery). *Circulation.* 2004 Oct 5;110(14):e340-437.
15. Fraker TD Jr, Fihn SD; 2002 Chronic Stable Angina Writing Committee; American College of Cardiology; American Heart Association, Gibbons RJ, Abrams J, Chatterjee K, Daley J, Deedwania PC, Douglas JS, et al. 2007 chronic angina focused update of the ACC/AHA 2002 guidelines for the management of patients with chronic stable angina: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines Writing Group to develop the focused update of the 2002 guidelines for the management of patients with chronic stable angina. *J Am Coll Cardiol.* 2007 Dec 4;50(23):2264-74.
16. Franklin B, Bonzheim K, Warren J, Haapaniemi S, Byl N, Gordon N. Effects of a contemporary, exercise-based rehabilitation and cardiovascular risk-reduction program on coronary patients with abnormal baseline risk factors. *Chest.* 2002 Jul;122(1):338–43.
17. Gibbons RJ, Abrams J, Chatterjee K, Daley J, Deedwania PC, Douglas JS, et al. American College of Cardiology; American Heart Association Task Force on Practice Guidelines. Committee on the Management of Patients With Chronic Stable Angina. ACC/AHA 2002 guideline update for the management of patients with chronic stable angina--summary article: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on the Management of Patients With Chronic Stable Angina). *Circulation.* 2003 Jan 7;107(1):149-58.
18. Gibbons RJ, Balady GJ, Bernard R, Bricker JT, Fletcher GF, Froelicher BF, et al. ACC/AHA guideline for exercise testing: summary article [report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Update the 1997 Exercise Testing Guidelines)]. *Circulation.* 2002;106:1883–92.
19. Goroll AH, Mulley AG. Cardiovascular rehabilitation and secondary prevention of coronary heart disease. In: Goroll AH, Mulley AG, editors. *Primary care medicine: office evaluation and management of the adult patient.* 6th ed. Philadelphia: Lippincott Williams & Wilkins; 2009. Ch 31.
20. Hammill BG, Curtis LH, Schulman KA, Whellan DJ. Relationship between cardiac rehabilitation and long-term risks of death and myocardial infarction among elderly Medicare beneficiaries. *Circulation.* 2010 Jan 5;121(1):63-70. Epub 2009 Dec 21.
21. Hunt SA, Abraham WT, Chin MH, Feldman AM, Francis GS, Ganiats TG, et al.; American College of Cardiology; American Heart Association Task Force on Practice Guidelines; American College of Chest Physicians; International Society for Heart and Lung Transplantation; Heart Rhythm Society. American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Update the 2001 Guidelines for the Evaluation and Management of Heart Failure): developed in collaboration with the American College of Chest Physicians and the International Society for Heart and Lung Transplantation: endorsed by the Heart Rhythm Society. *Circulation.* 2005 Sep 20;112(12):e154-235.

22. Institute for Clinical Systems Improvement (ICSI). Health Care Guideline: Diagnosis and Treatment of Chest Pain and Acute Coronary Syndrome (ACS). October 2010. Accessed January 24, 2011. Available at URL address: <http://www.icsi.org/index.aspx>
23. Jolliffe JA, Rees K, Taylor RS, Thompson D, Oldridge N, Ebrahim S. Exercise-based rehabilitation for coronary heart disease. The Cochrane Database of Systematic Reviews 2001, Issue 1. Art. No.: CD001800. DOI: 10.1002/14651858.CD001800.
24. Kavanagh T. Prediction of long-term prognosis in 12169 men referred for cardiac rehabilitation. *Circulation*. 2002 Aug 6;106(6):666–71.
25. King SB 3rd, Smith SC Jr, Hirshfeld JW Jr, Jacobs AK, Morrison DA, Williams DO; 2005 WRITING COMMITTEE MEMBERS, Feldman TE, Kern MJ, O'Neill WW, Schaff HV, Whitlow PL, Adams CD, et al. 2007 Focused Update of the ACC/AHA/SCAI 2005 Guideline Update for Percutaneous Coronary Intervention: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines: 2007 Writing Group to Review New Evidence and Update the ACC/AHA/SCAI 2005 Guideline Update for Percutaneous Coronary Intervention, Writing on Behalf of the 2005 Writing Committee. *Circulation*. 2008 Jan 15;117(2):261-95. Epub 2007 Dec 13.
26. Kobashigawa JA. A controlled trial of exercise rehabilitation after heart transplantation. *N Engl J Med*. 1999 Jan 28;340(4):272–7.
27. Krumholz HM, Anderson JL, Bachelder BL, Fesmire FM, Fihn SD, Foody JM, et al; American College of Cardiology/American Heart Association Task Force on Performance Measures; American Academy of Family Physicians; American College of Emergency Physicians; American Association of Cardiovascular and Pulmonary Rehabilitation; Society for Cardiovascular Angiography and Interventions; Society of Hospital Medicine. ACC/AHA 2008 performance measures for adults with ST-elevation and non-ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non-ST-Elevation Myocardial Infarction) Developed in Collaboration With the American Academy of Family Physicians and American College of Emergency Physicians Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation, Society for Cardiovascular Angiography and Interventions, and Society of Hospital Medicine. *J Am Coll Cardiol*. 2008 Dec 9;52(24):2046-99.
28. Leon AS, Franklin BA, Costa F, Balady GJ, Berra KA, Stewart KJ, et al. Cardiac rehabilitation and secondary prevention of coronary heart disease: an American Heart Association scientific statement from the Council on Clinical Cardiology (Subcommittee on Exercise, Cardiac Rehabilitation, and Prevention) and the Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity), in collaboration with the American association of Cardiovascular and Pulmonary Rehabilitation. *Circulation*. 2005 Jan 25;111(3):369–76.
29. McAlister FA, Lawson FM, Teo KK, Armstrong PW. Randomised trials of secondary prevention programmes in coronary heart disease: systematic review. *BMJ*. 2001 Oct 27;323(7319):957-62.
30. Marchionni N, Fattorioli F, Fumagalli S, Oldridge N, Del Lungo F, Morosi L, et al. Improved exercise tolerance and quality of life with cardiac rehabilitation of older patients after myocardial infarction: results of a randomized, controlled trial. *Circulation*. 2003 May;107:2201–6.
31. National Heart Lung and Blood Institute (NHLBI). Cardiac Rehabilitation. August 2009. Accessed January 24, 2011. Available at URL address: http://www.nhlbi.nih.gov/health/dci/Diseases/rehab/rehab_what.html
32. Rees K, Taylor RS, Singh S, Coats AJS, Ebrahim S. Exercise based rehabilitation for heart failure. The Cochrane Database of Systematic Reviews 2010, Issue 3. Art No.: CD003331.pub2.DOI: 10.1002/14651858.CD003331.pub2.

33. Reid RD, Dafoe WA, Morrin L, Mayhew A, Papadakis S, Beaton L, et al. Impact of program duration and contact frequency on efficacy and cost of cardiac rehabilitation: results of a randomized trial. *Am Heart J*. 2005 May;149(5):862-8.
34. Singh VN, Shocken DD, Williams K. Cardiac rehabilitation. Updated September 19, 2008. Accessed January 24, 2011. Available at URL address: <http://emedicine.medscape.com/article/319683-overview>
35. Smith SC Jr, Feldman TE, Hirshfeld JW Jr, Jacobs AK, Kern MJ, King SB 3rd, et al.; American College of Cardiology/American Heart Association Task Force on Practice Guidelines; ACC/AHA/SCAI Writing Committee to Update 2001 Guidelines for Percutaneous Coronary Intervention. ACC/AHA/SCAI 2005 guideline update for percutaneous coronary intervention: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/SCAI Writing Committee to Update 2001 Guidelines for Percutaneous Coronary Intervention). *Circulation*. 2006 Feb 21;113(7):e166-286.
36. Taylor RS, Brown A, Ebrahim S, Jolliffe J, Noorani H, Rees K, et al. Exercise-based rehabilitation for patients with coronary heart disease: systematic review and meta-analysis of randomized controlled trials. *Am J Med*. 2004 May 15;116(10):682-92.
37. Thomas RJ, King M, Lui K, Oldridge N, Piña IL, Spertus J, et al. AACVPR; ACC; AHA; American College of Chest Physicians; American College of Sports Medicine; American Physical Therapy Association; Canadian Association of Cardiac Rehabilitation; European Association for Cardiovascular Prevention and Rehabilitation; Inter-American Heart Foundation; National Association of Clinical Nurse Specialists; Preventive Cardiovascular Nurses Association; Society of Thoracic Surgeons. AACVPR/ACC/AHA 2007 performance measures on cardiac rehabilitation for referral to and delivery of cardiac rehabilitation/secondary prevention services endorsed by the American College of Chest Physicians, American College of Sports Medicine, American Physical Therapy Association, Canadian Association of Cardiac Rehabilitation, European Association for Cardiovascular Prevention and Rehabilitation, Inter-American Heart Foundation, National Association of Clinical Nurse Specialists, Preventive Cardiovascular Nurses Association, and the Society of Thoracic Surgeons. *J Am Coll Cardiol*. 2007 Oct 2;50(14):1400-33.
38. Thomas RJ, King M, Lui K, Oldridge N, Piña IL, Spertus J. AACVPR/ACCF/AHA 2010 Update: Performance Measures on Cardiac Rehabilitation for Referral to Cardiac Rehabilitation/Secondary Prevention Services Endorsed by the American College of Chest Physicians, the American College of Sports Medicine, the American Physical Therapy Association, the Canadian Association of Cardiac Rehabilitation, the Clinical Exercise Physiology Association, the European Association for Cardiovascular Prevention and Rehabilitation, the Inter-American Heart Foundation, the National Association of Clinical Nurse Specialists, the Preventive Cardiovascular Nurses Association, and the Society of Thoracic Surgeons. *J Am Coll Cardiol*. 2010 Sep 28;56(14):1159-67.
39. Thompson PD. Comprehensive rehabilitation of patients with cardiovascular disease. In: Zipes DP, Libby P, Bonow RO, Braunwald E, editors. *Braunwald's heart disease. A textbook of cardiovascular disease*. 8th ed. Philadelphia, PA: Saunders; 2007. Ch 46.
40. Wenger NK, Froelicher ES, Ades PE, Berra K, Blumenthal JA, Certo CME, et al. Cardiac rehabilitation [clinical guideline no. 17]. Rockville, MD: Agency for Healthcare Research and Quality (AHRQ); 1995 Oct. Accessed January 24, 2011. Available at URL address: <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat2.chapter.6677>

Policy History

<u>Pre-Merger Organizations</u>	<u>Last Review Date</u>	<u>Policy Number</u>	<u>Title</u>
CIGNA HealthCare	3/15/2008	0073	Cardiac Rehabilitation (Phase II Outpatient)

"CIGNA", "CIGNA HealthCare" and the "Tree of Life" logo are registered service marks of CIGNA Intellectual Property, Inc., licensed for use by CIGNA Corporation and its operating subsidiaries. All products and services are provided by such operating subsidiaries and not by CIGNA Corporation. Such operating subsidiaries include Connecticut General Life Insurance Company, CIGNA Health and Life Insurance Company, CIGNA Behavioral Health, Inc., CIGNA Health Management, Inc., and HMO or service company subsidiaries of CIGNA Health Corporation and CIGNA Dental Health, Inc. In Arizona, HMO plans are offered by CIGNA HealthCare of Arizona, Inc. In California, HMO plans are offered by CIGNA HealthCare of California, Inc. In Connecticut, HMO plans are offered by CIGNA HealthCare of Connecticut, Inc. In North Carolina, HMO plans are offered by CIGNA HealthCare of North Carolina, Inc. In Virginia, HMO plans are offered by CIGNA HealthCare Mid-Atlantic, Inc. All other medical plans in these states are insured or administered by Connecticut General Life Insurance Company or CIGNA Health and Life Insurance Company.