

Core Competencies for Cardiac Rehabilitation/Secondary Prevention Professionals: 2010 Update

POSITION STATEMENT OF THE AMERICAN ASSOCIATION OF CARDIOVASCULAR AND PULMONARY REHABILITATION

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■ Cardiac rehabilitation/secondary prevention (CR/SP) services are typically delivered by a multidisciplinary team of health care professionals. The American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) recognizes that to provide high-quality services, it is important for these health care professionals to possess certain core competencies. This update to the previous statement identifies 10 areas of core competencies for CR/SP health care professionals and identifies specific knowledge and skills for each core competency. These core competency areas are consistent with the current list of core components for CR/SP programs published by the AACVPR and the American Heart Association and include comprehensive cardiovascular patient assessment; management of blood pressure, lipids, diabetes, tobacco cessation, weight, and psychological issues; exercise training; and counseling for psychosocial, nutritional, and physical activity issues.

K E Y W O R D S

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Cardiac rehabilitation and secondary prevention (CR/SP) services have proved effective for improving risk factor management and reducing morbidity and mortality among patients with coronary artery disease. As a result, CR/SP services are recognized as a standard of care for patients with cardiovascular disease (CVD).¹⁻⁶ CR/SP services are provided through an interdisciplinary approach and include specific core components known to optimize cardiovascular risk reduction, foster healthy behaviors and compliance, reduce disability, and promote an active lifestyle for persons with CVD.⁷ Competent health care professionals from multiple disciplines are essential to the delivery of comprehensive CR/SP services that meet both patient needs and the requirements of a fluid health care environment. The purpose of the article is to update the previous statement of core competencies for CR/SP professionals,⁸ relate these competencies to the revised core components for CR/SP programs,⁷ reflect current expectations in providing CR/SP services,⁹ and integrate a core set of contemporary competency expectations recommended for all health care professionals.¹⁰

It is important to understand that defining competence, including specific competencies, is complex and dynamic. Professional competence is a multifaceted concept centered on the integration of core knowledge and skills into clinical practice, but also involving interpersonal skills, lifelong learning, and professionalism.¹¹ Competencies reflect the legal, ethical, regulatory, and political influences on the practice of professionals in health care that are defined as essential for a practitioner within a specific health discipline. Core competencies are used to define a set of measurable indicators required for minimal expectations for performance within a health discipline. Core competencies are used as a framework to align health care providers, educators, students, consumers, and payors with defined expectations for providing care in accordance with evidence-based standards, performance measures, and quality outcomes.¹²

GENERAL CORE COMPETENCIES FOR HEALTH CARE PROFESSIONALS

The Institute of Medicine (IOM) established quality initiatives designed to help improve quality of care and patient safety.¹³ Since skilled and knowledgeable health care professionals are needed to implement the transformation of health systems to advance quality, the Health Professional Education Summit was convened to develop a core set of competencies.¹⁰ These competencies were developed to address shifts in the US patient population resulting in the patients

we serve becoming more diverse, older, and often with numerous comorbidities. The overarching vision from the IOM committee was for educational programs to incorporate the following in their educational and training programs:

All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics.^{10(p45)}

Table 1 illustrates the core competencies that all health care professionals should possess, regardless of their discipline, as proposed by the committee convened to meet the needs of today's health care environment.¹⁰ These essential core competencies are the basis on which specific core competencies can be built for all health care professionals working in CR/SP programs.

CORE COMPETENCIES FOR CR/SP PROFESSIONALS

Program core components define specific information and skills necessary to provide evidence-based care in CR/SP programs.⁷ These include comprehensive cardiovascular patient assessment; management of blood pressure, lipids, diabetes, tobacco cessation, weight, and psychological issues; exercise training; and counseling for psychosocial, nutritional, and physical activity issues. This evidence-based document provides the framework for defining core competencies for CR/SP professionals with suggested means for assessment. As previously recommended, provision of care is optimally provided through a case management function, which involves coordination of an interdisciplinary treatment plan.⁸ Health care professionals involved in providing CR/SP services come from multiple health disciplines, such as medicine, nursing, exercise physiology, physical therapy, clinical nutrition, psychology, social work/counseling.

The American College of Cardiology Foundation, American Heart Association, and American College of Physicians described a curriculum for developing competence among all health care professionals involved in the prevention of CVD.¹⁴ Section 16 of that publication specifically addresses recommended knowledge for cardiac rehabilitation and secondary prevention of CVD. The document defines a need for shared responsibility among multiple health care professionals in the prevention of cardiovascular morbidity and mortality. Opportunities for educational resources are critical to ensure the acquisition and maintenance of competence in cardiovascular risk-reduction strategies resulting

Table 1 • Core Competencies for Health Care Professionals^a

Competency	Essential Elements
Provide patient-centered care	<ul style="list-style-type: none"> • Identify, respect, and care about patient differences, values, preferences, and expressed needs • Relieve pain and suffering • Coordinate continuous care • Listen to, clearly inform, communicate with, and educate patients • Share decision making and management • Advocate disease prevention, wellness, and promotion of healthy lifestyle, including a focus on population health
Work in interdisciplinary teams	<ul style="list-style-type: none"> • Cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable
Employ evidence-based practice	<ul style="list-style-type: none"> • Integrate best research with clinical expertise and patient values • Participate in learning and research activities to the extent feasible
Apply quality improvement	<ul style="list-style-type: none"> • Identify errors and hazards in care • Understand and implement basic safety design principles • Understand and measure quality of care in terms of structure, process, and outcomes in relation to patient and community needs
Utilize informatics	<ul style="list-style-type: none"> • Design and evaluate interventions to change processes and systems of care to improve quality • Communicate and manage information/knowledge to mitigate error and support decision making using information technology

^aFrom Greiner and Knebel.¹⁰

from expanding knowledge in the field of CR/SP. It is important to acknowledge that each CR/SP health care professional may not necessarily achieve all areas of competencies. Consequently, it is the implementation of the case management approach utilizing the skills and competencies of the multidisciplinary CR/SP team, which will facilitate improved outcomes as measured by requisite studies of morbidity and mortality data.

Table 2 provides recommendations for core competencies in knowledge and skills for CR/SP professionals within each component of care. The organization of

core competencies in this systematic approach accomplishes multiple goals. First, it identifies knowledge and skills that are important for professionals working in these programs. Second, it defines appropriate evaluation of skills and knowledge that should be assessed on the basis of professional training, education, certification, or licensure for professionals on the multidisciplinary CR/SP team. Third, it provides guidance to academic programs that prepare students to enter the field of CR/SP. Finally, these core competencies are incorporated into the AACVPR program certification process.¹⁵

Table 2 • Core Competencies for Cardiac Rehabilitation and Secondary Prevention Professionals

Competency	Knowledge	Skills
Patient assessment	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Cardiovascular anatomy, physiology, and pathophysiology • Process of arteriosclerosis and pathogenesis of cardiovascular risk factors • Cardiac arrhythmias (eg, complex PVCs, atrial fibrillation, SVT) and their influence on physical activity and symptoms • Cardiac device therapies (eg, pacemakers, defibrillators, and left ventricular assist devices) • Cardiovascular assessments, diagnostic tests, and procedures • Signs and symptoms of CVD • Appropriate emergency responses to changing signs and symptoms 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Obtain a comprehensive medical, social, and family history through interview, review of medical records, and questionnaires • Physical examination of cardiovascular system (eg, HR, BP, auscultation of heart/lung sounds, palpate/inspect extremities for edema, pulses, signs of DVT and PAD, inspect surgical wound) • Develop risk factor profile and CVD risk reduction strategies • Basic tests/assessments: 12-lead ECG, oximetry, blood glucose, and blood lipids • Obtain information on patient preferences and goals <p style="text-align: right;"><i>(continues)</i></p>

Table 2 • Core Competencies for Cardiac Rehabilitation and Secondary Prevention Professionals (Continued)

Competency	Knowledge	Skills
	<ul style="list-style-type: none"> • Effective lifestyle management of CVD and associated risk factors • Pharmacologic approaches for CVD and risk factor management • Comorbidities limiting or otherwise influencing function or treatment strategies • Side effects from pharmacologic therapies • Psychosocial factors related to CVD • Adult learning principles, theoretical models for behavior change, adherence, coping, disease management strategies • Compliance/adherence to therapeutic regimens • Effective communication to referral sources and the interdisciplinary team to promote care coordination • Principles and methods for outcome assessment and reporting 	<ul style="list-style-type: none"> • Interactive communication and counseling with patient/family on treatment plan through shared decision making • Develop an ITP • Document and communicate ITP and progress reports to physicians and interdisciplinary team • Quantify patient outcome assessment through pre- and post-program assessment
Nutritional counseling	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Role and impact of diet on CVD progression and risk factor management • Analysis of diet composition with specific emphasis on total caloric intake and dietary content that influence risk factors (total fats, cholesterol, refined and processed carbohydrates, sodium, etc)¹⁶ • Potential risks and/or benefits of nonprescription nutritional supplements and alcohol intake • Target goals for dietary modification and nutrition interventions for identified risk factors¹⁶ and/or comorbidities (eg, dyslipidemia, hypertension, diabetes, obesity, heart failure, kidney disease) • Effective behavior change strategies based on common theoretical models and adult learning strategies¹⁷ 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Dietary intake assessment to estimate total calories; amounts of saturated fat, trans fat, cholesterol, sodium, fruits and vegetables, whole grains, fiber, and fish; number of meals/snacks; portion sizes; frequency of eating out; alcohol consumption • Education and counseling on specific dietary modification needed to achieve target goals • Behavioral interventions to promote adherence and self-management skills in dietary habits • Measure and report outcomes of nutritional management goals at the conclusion of the program^{7,18}
Weight management	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Physiologic and pathologic effects of overweight/obesity and that of low body weight • Principles of weight management through the balance of caloric intake and caloric expenditure • Awareness of fad diets and possible risks to CVD patients • Current guidelines and recommendations for healthy body weight and secondary prevention¹⁹⁻²¹ • Weight loss interventions that promote gradual, sustainable weight loss (5%–10%) over 3-6 months • Medications and surgeries for weight loss • Nutritional and medical risks associated with rapid weight loss and cyclical weight gain and weight loss 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Measure body weight, height, and waist circumference • Calculate body mass index and determine proper category: normal, overweight, or obese • Develop short- and long-term weight loss goals for those in overweight or obese categories • Assess nutritional and dietary habits as well as daily energy intake and expenditure to help guide individualized education and counseling for weight management • Behavioral interventions to promote adherence and self-management skills in weight management • Measure and report outcomes of weight management at the conclusion of the program^{7,18}

(continues)

Table 2 • Core Competencies for Cardiac Rehabilitation and Secondary Prevention Professionals (Continued)

Competency	Knowledge	Skills
Blood pressure management	<ul style="list-style-type: none"> • Recognition that weight loss and weight maintenance is often complex and difficult and requires ongoing dietary management, physical activity, and behavioral management • Importance and efficacy of regular physical activity,²² modification of dietary patterns, changes in caloric balance, and drug therapy in weight management • Effective behavior change strategies based on common theoretical models and adult learning strategies¹⁷ <p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Hypertension as a risk factor for atherosclerotic vascular disease and potential end-organ damage • Signs/symptoms of hypotension and hypertension • Normal range of BP at rest and during exercise • Current BP targets for secondary prevention^{21,23} • Role of home BP monitoring in BP management²⁴ • Actions of classes of antihypertensive medications and common side effects • Postural and post-exercise hypotension • Elements of the DASH Diet for treating hypertension²⁵ • Principles of measurement and operation for different devices used to measure BP • Recognition that BP control is often complex and difficult and may require ongoing medication adjustments, dietary management, physical activity, and behavioral management • Importance and efficacy of sodium restriction, weight management, physical activity and exercise, smoking cessation, alcohol moderation, and drug therapy in the control of BP 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Accurate BP determinations at rest (seated, supine, and standing) and during exercise²⁶ • Recognition of significant BP deviations from the expected range or targeted outcome • Assess compliance with BP medications and management plan • Measure and report outcomes for BP management at the conclusion of the rehabilitation program^{7,18}
Lipid management	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Definitions of LDL-C, HDL-C, VLDL-C, TG, non-HDL-C • Physiological role of lipids in the atherosclerotic disease process • Elements of the Therapeutic Lifestyle Change Diet²⁷ and the Mediterranean diet • Actions of classes of antihyperlipidemic medications, including nonprescription, and side effects • Types of dietary fats and simple carbohydrates and their effect on serum lipid levels • Current serum lipid target values for secondary prevention^{21,27} • Importance and efficacy of weight management, physical activity and exercise, smoking cessation, alcohol moderation, and drug therapy in the control of serum lipids 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Interpret LDL-C, HDL-C, non-HDL-C, VLDL-C, and TG values in light of secondary prevention target values²¹ • Assess compliance with antihyperlipidemic medications and management plan • Assess compliance with lifestyle interventions for the management of serum lipid values • Provide patient education information concerning serum lipids • Develop a risk reduction plan for abnormal serum lipids and communicate the plan to the patient/family • Measure and report outcomes for serum lipids at the conclusion of rehabilitation^{7,18}

(continues)

Table 2 • Core Competencies for Cardiac Rehabilitation and Secondary Prevention Professionals (Continued)

Competency	Knowledge	Skills
Diabetes management	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Type I and type II diabetes • Fasting and casual blood glucose values that define hypoglycemia and hyperglycemia^{28,29} • Importance of and recommended target value for HbA_{1c}^{21,28} • Complications related to diabetes: micro and macrovascular; autonomic and peripheral neuropathy; nephropathy; and retinopathy • Signs and symptoms related to hypoglycemia and hyperglycemia • Use of carbohydrates for hypoglycemia • Actions of glucose-lowering medications and insulin • Importance of monitoring blood glucose values, especially before and after the exercise • Contraindications to exercise based on blood glucose values³⁰ • Importance of compliance with diabetic medications and dietary, body weight, and exercise recommendations • Importance of recognizing and managing the metabolic syndrome and the associated CVD risk factors • Importance and efficacy of weight management, physical activity and exercise, alcohol moderation, and drug therapy in the control of blood glucose 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • History of complications related to diabetes including frequency and triggers of hyperglycemia and hypoglycemia • Calibration and proper use of glucometers • Assess signs and symptoms of hyperglycemia and hypoglycemia and take appropriate actions • Provide patient education concerning the effects of lifestyle and medications on glycemic control • Referral of the patient to a diabetic educator or clinical dietitian, as needed • Measure and report outcomes for glucose control at the conclusion of rehabilitation, including episodes of hyperglycemia and hypoglycemia during/after exercise^{7,18}
Tobacco cessation	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Current guidelines for treating tobacco use and secondary prevention goal^{21,31} • Biochemical and physiological consequences of smoking on CVD • Exposure of secondhand smoke as a risk factor for cardiovascular events • Effective behavior change strategies based on common theoretical models¹⁷ • Available support services to support smoking cessation (eg, community smoking cessation programs, counselors, psychologists) • Physiological and psychological aspects of tobacco addiction • Efficacy of pharmacologic interventions, including risks and benefits 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Assessment of use and categories of tobacco use: never, former, recent, or current • Behavioral interventions to promote tobacco cessation and long-term tobacco-free adherence • Measure and report outcomes of tobacco cessation at the conclusion of the program^{7,18}
Psychosocial management	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Influence of psychosocial factors on the pathophysiology of CVD and adherence to treatment • Depression and its major association with recurrent CAD events, poorer outcomes, and adherence to treatment • Other psychological indicators that may affect treatment response, such as anxiety, anger or hostility, and social isolation 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Screening and assessment for psychological distress, especially depression, anxiety, anger or hostility; social isolation; marital/family distress; sexual dysfunction; and substance abuse • Appropriate referrals for psychiatric or psychological care when needs are recognized as beyond the scope of usual care • Individual and group education and counseling interventions that address stress management and coping strategies

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Table 2 • Core Competencies for Cardiac Rehabilitation and Secondary Prevention Professionals (Continued)

Competency	Knowledge	Skills
	<ul style="list-style-type: none"> • Actions of pharmacologic and lifestyle interventions for psychological distress • Socioeconomic factors that may serve as barriers to treatment adherence, such as educational or income level, lack of resources or support • Available support services to augment psychological interventions (eg, psychologists, counselors, social workers, clergy) • Effective behavior change strategies based on common theoretical models and adult learning strategies¹⁷ 	<ul style="list-style-type: none"> • Measure and report outcomes of psychosocial management at the conclusion of the program^{7,18}
Physical activity counseling	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Lack of regular physical activity and sedentary behavior as a risk factor for CAD³² • Negative health consequences of time spent being sedentary • Current recommendations for intensity, frequency, and duration for regular physical activity in persons with CVD^{21,33} • Preexisting musculoskeletal and neuromuscular conditions that may affect physical activity • Identifying physical activities that may increase the risk for an untoward cardiovascular event and environmental conditions that may also increase the risk • Barriers to increasing physical activity • Metabolic requirements for recreational, occupational, and sexual activities³⁴ • Recommendations to avoid musculoskeletal injury related to physical activity • Effective behavior change strategies based on common theoretical models and adult learning strategies¹⁷ 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Assess current physical activity level using both questionnaires and available activity-monitoring devices • Assist patients in setting realistic incremental goals for future physical activity • Recommendations for increasing the level of safe and appropriate daily physical activity and structured exercise • Assess physical and metabolic requirements for activities of daily living, occupational, and recreational activities • Communication/behavioral strategies that will improve compliance with regular physical activity recommendations • Measure and report outcomes for physical activity at the conclusion of rehabilitation^{7,18}
Exercise training evaluation	<p>Demonstrate an understanding of:</p> <ul style="list-style-type: none"> • Normal and abnormal responses to exercise including signs and symptoms of exercise intolerance, myocardial ischemia, acute coronary syndrome, and ventricular arrhythmias³⁰ • Physiological responses to acute exercise and adaptations to chronic exercise • Risk stratification according to patient assessment and exercise test results^{9,30,35} • Exercise prescription methodology for cardiovascular endurance exercise and resistance training in a broad range of patients with heart disease • Absolute and relative contraindications for exercise • Absolute and relative indications to terminate an exercise session 	<p>Ability to perform the following:</p> <ul style="list-style-type: none"> • Recognition of life-threatening cardiac arrhythmias, myocardial ischemia or infarction, hypoxemia, hypotension, hypoglycemia, and other signs and symptoms of exercise intolerance • Risk stratify each patient according to AHA and AACVPR criteria^{9,30,35} • Develop an individualized, safe, and effective cardiovascular endurance exercise prescription, including modes, intensity, duration, frequency, and progression^{30,32} • Develop an individualized, safe, and effective exercise prescription for resistance training, including load, number of repetitions, frequency, and progression for appropriate muscle groups^{30,32}

(continues)

Table 2 • Core Competencies for Cardiac Rehabilitation and Secondary Prevention Professionals (Continued)

Competency	Knowledge	Skills
		<ul style="list-style-type: none"> • Include warm-up, cool-down, and exercises for flexibility and balance in the exercise prescription • As needed, accommodate existing comorbidities into the exercise prescription • Skin preparation and electrode placement for exercise ECG telemetry monitoring • Measure and report outcomes for exercise training at the conclusion of rehabilitation^{7,18}
<p>Abbreviations: AACVPR, American Association of Cardiovascular and Pulmonary Rehabilitation; AHA, American Heart Association; BP, blood pressure; CAD, coronary artery disease; CVD, cardiovascular disease; DASH, Dietary Approaches to Stop Hypertension; DVT, deep vein thrombosis; ECG, electrocardiogram; HbA_{1c}, glycosylated hemoglobin; HDL-C, high-density lipoprotein cholesterol; HR, heart rate; ITP, individual treatment plan; LDL-C, low-density lipoprotein cholesterol; PAD, peripheral artery disease; PVCs, premature ventricular contractions; SVT, supraventricular tachycardia; TG, triglycerides; VLDL-C, very low-density lipoprotein cholesterol.</p>		

SUMMARY

These core competencies were developed to provide a comprehensive CR/SP program that is consistent with the recommended core components for CR/SP programs.⁷ The expectation is that 1 single health care professional does not possess all of the core competencies. Rather, each member of the multidisciplinary CR/SP team, on the basis of education, training, and certifications or licensure, contributes certain core competencies to the team and, together, the team will possess many or all of the core competencies.

We acknowledge that this comprehensive list of core competencies may present challenges for CR/SP programs that are smaller or operate with limited access to resources. Therefore, these core competencies represent the ideal and should be viewed as a goal for all programs to strive to achieve through innovative programming and accessing available resources relevant to the individual CR/SP program.

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