Cardiovascular System

Instructor Lesson Plan

Time Required: 4.75 Hours

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| Lesson Description | |
| The information below provides the instructor with an overview of the lesson and the materials that are required to effectively present this instruction. | |
| TMS # | 61819 |
| Prerequisites | Prior to this lesson, the Rating Veteran Service Representatives (RVSRs) Challenge. Trainees should also be familiar with VBMS-R. |
| target audience | The target audience for Cardiovascular Systemis RVSR, (Post Challenge).  Although this lesson is targeted to teach the RVSR (Post Challenge) employee, it may be taught to other VA personnel as mandatory or refresher type training. |
| Time Required | 4.75 hour |
| Materials/ TRAINING AIDS | Lesson materials:   * Cardiovascular SystemPowerPoint Presentation * Cardiovascular System Trainee Handouts * Cardiovascular System Job Aid |
| Training Area/Tools | The following are required to ensure the trainees are able to meet the lesson objectives:   * Classroom or private area suitable for participatory discussions * Seating, writing materials, and writing surfaces for trainee note taking and participation * Handouts, which include a practical exercise * Large writing surface (easel pad, chalkboard, dry erase board, overhead projector, etc.) with appropriate writing materials * Computer with PowerPoint software to present the lesson material   Trainees require access to the following tools:   * VA TMS to complete the assessment |
| Pre-Planning | * Become familiar with all training materials by reading the Instructor Lesson Plan while simultaneously reviewing the corresponding PowerPoint slides. This will provide you the opportunity to see the connection between the Lesson Plan and the slides, which will allow for a more structured presentation during the training session. * Become familiar with the content of the trainee handouts and their association to the Lesson Plan. * Practice is the best guarantee of providing a quality presentation. At a minimum, do a complete walkthrough of the presentation to practice coordination between this Lesson Plan, the trainee handouts, and the PowerPoint slides and ensure your timing is on track with the length of the lesson. * Ensure that there are copies of all handouts before the training session. * When required, reserve the training room. * Arrange for equipment such as flip charts, an overhead projector, and any other equipment (as needed). * Talk to people in your office who are most familiar with this topic to collect experiences that you can include as examples in the lesson. * This lesson plan belongs to you. Feel free to highlight headings, key phrases, or other information to help the instruction flow smoothly. Feel free to add any notes or information that you need in the margins. |
| Training Day | * Arrive as early as possible to ensure access to the facility and computers. * Become familiar with the location of restrooms and other facilities that the trainees will require. * Test the computer and projector to ensure they are working properly. * Before class begins, open the PowerPoint presentation to the first slide. This will help to ensure the presentation is functioning properly. * Make sure that a whiteboard or flip chart and the associated markers are available. * The instructor completes a roll call attendance sheet or provides a sign-in sheet to the students. The attendance records are forwarded to the Regional Office Training Managers. |

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| Introduction to Cardiovascular System | | |
| INSTRUCTOR INTRODUCTION | | Complete the following:   * Introduce yourself * Orient learners to the facilities * Ensure that all learners have the required handouts |
| time required | | .25 hours |
| Purpose of Lesson  Explain the following: | | This lesson is intended to increase the students’ knowledge, comprehension and application of the Rating Schedule in evaluating cardiovascular related disabilities. This lesson will contain discussions and exercises that will allow you to gain a better understanding of:   * The primary parts of the cardiovascular system * The basic principles in applying the Rating Schedule in evaluating cardiovascular-related disabilities |
| Lesson Objectives  Discuss the following:  Slide 2  Handout 2 | In order to accomplish the purpose of this lesson, the RVSR will be required to accomplish the following lesson objectives.  The RVSRwill be able to:   * identify the primary components of the cardiovascular system * understand the basic principles of evaluating cardiovascular related disabilities | |
| Explain the following: | Each learning objective is covered in the associated topic. At the conclusion of the lesson, the learning objectives will be reviewed. | |
| Motivation | Understanding and adequately applying the Rating Schedule in cardiovascular related disabilities will ensure Veterans receive appropriate benefits, while increasing quality of decisions made within your Service Center. | |
| STAR Error code(s) | A1, A2, C1, C2, D2 | |
| References  Slide 3  Handout 3 | Explain where these references are located in the workplace.  All M21-1 references are found in the [Live Manual Website](https://vaww.compensation.pension.km.va.gov/).   * [**38 CFR 3.307, Presumptive service connection for chronic, tropical or prisoner-of-war related disease, or disease associated with exposure to certain herbicide agents; wartime and service on or after January 1, 1947**](http://www.ecfr.gov/cgi-bin/text-idx?SID=0630d5624c5da26fa967f7f946edcb2f&mc=true&node=se38.1.3_1307&rgn=div8) * [**38 CFR 3.309, Disease subject to presumptive service connection**](http://www.ecfr.gov/cgi-bin/text-idx?SID=0630d5624c5da26fa967f7f946edcb2f&mc=true&node=se38.1.3_1309&rgn=div8) * [**38 CFR 4.100, Application of the evaluation criteria for diagnostic codes 7000-7007, 7011, and 7015-7020**](http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=9326662dc5925f175acd349f6883a4dd&mc=true&r=SECTION&n=se38.1.4_1100) * [**M21-1, Part IV, Subpart ii, 2, C - Service Connection (SC) for Disabilities Resulting From Exposure to Environmental Hazards or Service in the Republic of Vietnam (RVN)**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/portal.html?portalid=554400000001034) * [**38 CFR 4.104, Schedule of ratings—cardiovascular system**](http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=9326662dc5925f175acd349f6883a4dd&mc=true&r=SECTION&n=se38.1.4_1104) * [**M21-1, Part III, Subpart iv, 4, E - Cardiovascular System Conditions**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/portal.html?portalid=554400000001034) * [**Drosky v. Brown, No 96-573, May 14, 1997**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/portal.html?portalid=554400000001034https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/portal.html?portalid=554400000001034) * [**Otero-Castro v. Principi, No. 01-1360, October 4, 2002**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/portal.html?portalid=554400000001034https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/portal.html?portalid=554400000001034) | |

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| Topic 1: Function of Cardiovascular System | |
| Introduction | This topic will allow the trainee to understand the physiology of the cardiovascular system |
| Time Required | 1 hours |
| OBJECTIVES/ Teaching Points | Topic objectives:   * Explain the physiology of the cardiovascular system   The following topic teaching points support the topic objectives:   * Primary Components and Functions |
| Primary Components  Slide 4  Handout 4  Explain that the blood disorders are rated under the Hemic & Lymphatic section of the Rating Schedule! | Discuss the three components of the cardiovascular system (each will be shown in preceding slides)  Heart  Arterial & Venous  Blood |
| Anatomy of the heart  Slide 5 & 6 slides have animated GIF,s  Handout 4 & 5 | Explain heart chambers  Left/Right side with upper (atrium) chamber and lower (ventricle) chamber  Show Heart Anterior and Posterior view (slide 6) – Explain Posterior side is also called “inferior side” as it faced the spin and rest on the diaphragm. |
| Primary functions of the heart  Slide 7,8 & 9  Handout 5 | Discuss heart role of Oxygen supplier from lungs to body, eliminates waste products “CO2” and relation between heart beats and blood collection (diastole) & distribution (systole) into and from chambers.  Pulmonary Circulation – Blood Flow: Slide 8 & 9 animation shows chambers filling and propulsion from the heart. |
| Circulatory system  Slide 10, 11, 12  Handout 6 | Overview of circulatory system components, Discuss Arteries and blood flow functions. Discuss role of Capillaries and connections to Veins |

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| Topic 2: Principles of evaluating cardiovascular disabilities | |
| Introduction | This topic will allow the trainee to understand the basic principles of evaluating cardiovascular related disabilities. |
| Time Required | 2 hours |
| OBJECTIVES/ Teaching Points | Topic objectives:   * understand the basic principles of evaluating cardiovascular related disabilities   The following topic teaching points support the topic objectives:   * Cardiovascular related disabilities * Rating criteria for the cardiovascular system * Total impairment criteria & Convalescence * Other Cardiovascular conditions * Secondary considerations |
| Cardiovascular related disabilities  Slide 13 & 14  Handout 7 | Discuss a few of the most commonly seen disabilities related to the cardiovascular system  Ensure students understand the differences between ratings based on Cardiac Pacemakers and Implantable cardioverter-defibrillators.  The pacemaker (DC 7018 is rated as 100% for two months following hospitalization for implantation or reimplantation. Evaluate as supraventricular arrhythmias (DC 7010), ventricular arrhythmias (DC 7011), or atrioventricular block (DC 7015). Minimum 10 percent  Evaluate implantable Cardioverter-Defibrillators (AICD's) under DC 7011. Which mandates that with an automatic implantable Cardioverter-Defibrillator (AICD) in place, a 100 percent evaluation should be assigned.  Ischemic Heart Disease (IHD) includes;   * Coronary Artery Disease * Atherosclerotic Cardiovascular Disease * Angina (Stable, unstable and Prinzmetal’s angina) * Myocardial Infarction * Coronary Bypass Surgery (This procedure indicates the presence of IHD) * Ischemic Cardiomyopathy |
| Rating criteria for the cardiovascular system  Slide 15, 16 & 17  Handout 7 - 30  Regulations, Rating Schedule Provisions, General Considerations  Diseases of the Heart  &  Diseases of the Arteries & Veins | 38 CFR 4.104 Schedule of Ratings—Cardiovascular System divides the cardiovascular system in two categories for rating purposes, “Diseases of the Heart” and “Diseases of the Arteries & Veins” which includes provisions for rating “Cold Injury Residuals” related to diseases of the arteries & veins.  Discuss the Diagnostic codes for key elements of the diseases, and 38 CFR Part 3 regulations as they apply to those diseases, including to former POWs.  Direct Participants to Handout which defines each of the diseases of the heart which have a diagnostic code in the rating schedule and discuss the evaluation criteria.  This material represents the bulk of the Handout. The instructor should be very familiar with the material presented in the handout and be prepared to answer discussion questions on the specifics of each diagnostic code.  METS/LVEF  Explain the reasoning behind the more objective evaluative criteria based on the level of physical activity expressed in METs.  Explain that METs is a measurement of work activities that can be used to evaluate disability. Discuss the number of METs and the activity level for the 100%, 60%, 30%, 10% and 0% evaluations. Explain that these criteria apply to evaluations under diagnostic codes 7000, 7001, 7002, 7003, 7004, 7005, 7006, 7007, 7011, 7015, 7016, 7017, 7019, and 7020. They are also the alternative criteria for DC 7018.  Note that METs testing is required in all cases, with four exceptions (38 CFR 3.100(b)). |
|  | Explain the objective rating criteria that can be used as an alternative to the METs criteria (i.e., LVEF, congestive heart failure, cardiac hypertrophy or dilatation, and continuous medication).  Note that CAVC has held in Otero-Castro v. Principi that Diagnostic Codes 7005 and 7007 do not require a separate showing of left-ventricular dysfunction in addition to an ejection fraction of 30% through 50% in order to qualify for a 60% rating if the claim is rated using the criteria alternative to METS.  Note that if left ventricular ejection fraction (LVEF) testing is not of record, evaluation should be based on the other criteria unless the examiner states that the LVEF test is needed in a particular case (38 CFR 3.100(c)).  State that whether or not cardiac hypertrophy or dilatation (documented by electrocardiogram, echocardiogram, or X-ray) is present and whether or not there is a need for continuous medication must be ascertained in all cases (38 CFR 3.100(a)). |
| Total Impairment criteria & Convalescence  Slide 18 | Describe when a 100 percent evaluation is required.  Explain that the periods of convalescence reflect, according to medical sources consulted, the average periods of recovery needed following certain procedures and illnesses. Although some cardiovascular conditions have indefinite periods of convalescence, others may be extended, when medically warranted, under the authority of 38 CFR 4.29 and 4.30.  Review the application of 38 CFR 3.150(e), noting that the indefinite periods of convalescence require application of due process before a change in evaluation can be made. |
| Other cardiovascular conditions  Slide 19, 20, & 21 | Explain why cor pulmonale is evaluated as part of the respiratory system.  Discuss some examples of congenital heart defects.   * + patent foramen ovale - holes in the wall of tissue (septum) between the left and right upper chambers of the heart (atria),   + patent ductus arteriosus - a persistent opening between two major blood vessels leading from the heart.   + coarctation of the aorta - a narrowing of the **aorta**, and   + intraventricular septal defect - a hole in the heart, is a common heart defect that's present at birth (congenital). The hole occurs in the wall that separates the heart's lower chambers (septum) and allows blood to pass from the left to the right side of the heart.   State that accepted medical principles do not concede an etiological relationship between rheumatic heart disease and either hypertensive or arteriosclerotic heart disease.  Explain that evaluating coexisting heart diseases cannot be done by regulation and that a medical opinion is required. |
| Secondary Considerations  Slide 22  Handout 31 | **Subsequent to Amputation;**  State that service connection on a secondary basis should be granted for ischemic heart disease or other cardiovascular disease developing in a veteran who has:   * a service-connected amputation of one lower extremity at or above the knee, or * service-connected amputations of both lower extremities at or above the ankles. |
| Exercise | **Complete review questions found in Handout page 32.** |

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| Practical Exercise | |
| Time Required | 1 hours |
| EXERCISE | Complete Practical Exercise found in handout page 35.  Ask if there are any questions about the information presented in the exercise, and then proceed to the Review. |
| Practical exercise scenarios  Slide 23  Handout 36 |  |

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| Lesson Review, Assessment, and Wrap-up | |
| Introduction  Discuss the following: | The Cardiovascular System lesson is complete.  Review each lesson objective and ask the trainees for any questions or comments. |
| Time Required | .5 hours |
| Lesson Objectives | You have completed the Cardiovascular System lesson.  The trainee should be able to:   * identify the primary components of the cardiovascular system * understand the basic principles of evaluating cardiovascular related disabilities |
| Assessment | Remind the trainees to complete the on-line assessment in TMS to receive credit for completion of the course.  The assessment will allow the participants to demonstrate their understanding of the information presented in this lesson. |