

In the *Cardiac Diagnostics CPU*, students examine the anatomy and physiology of the cardiovascular system. Students practice aseptic procedures while taking basic vital signs such as blood pressure, pulse, and respiration. Students will also explore how various diagnostic procedures are performed. Students will also learn basic interpretation of abnormal anatomy in CT scans using simulation software, and ECGs using interactive material in DEPCO Studio™.

## Areas Covered

- ◆ Anatomy and physiology of the heart
- ◆ Lung physiology
- ◆ Taking vital signs such as:
  - Blood pressure
  - Pulse
  - Respiration
- ◆ Proper aseptic procedures
- ◆ Diseases of the heart
- ◆ Diagnostic tools necessary for intervention and prevention
- ◆ The heart's electrical conduction
- ◆ How an ECG is performed
- ◆ Performing a simulated ECG
- ◆ Diagnostic procedures used in cardiac situations, including:
  - MRI
  - Angiography
  - CAT Scan
  - Echocardiogram
  - ABG
- ◆ Skills and knowledge to aid students in various HOSA competitions



## Career Pathway Unit Includes:

Cardiac Diagnostics CD and Instructor's Overview Booklet, Anatomical Heart, Cardiac CT Atlas, Cardiovascular System Textbook, Dictionary for Health Professionals, EKG Caliper, EKG Ruler, Skills Cart™, Microphone, Multi-Skilling ECG Textbook, Sphygmomanometer, Stethoscope

# Cardiac Diagnostics Goals & Activities

- Explore the heart's basic anatomy and physiology.
- Examine the cardiac cycle.
- Identify parts of the heart and vessels that transport blood.
- List common signs and symptoms that individuals with cardiovascular problems may describe.
- Determine proper procedure for taking basic vital signs associated with the cardiovascular system.
- Explore communication techniques and safety standards to consider while taking a patient's basic vital signs.
- Evaluate guidelines for charting health care records.
- Define myocardial infarction.
- Conduct in-depth research on diseases of the heart and procedures used in treatment.
- Create a presentation on a specific heart disease.
- Define ECG and explore its use.
- Conduct an ECG (actual or simulated).
- Identify the various segments of an ECG reading.
- Define P wave, PR segment, QRS complex, ST segment, and T wave.
- Determine normal representations for waves and segments on ECG readouts/tracings.
- Discover abnormalities found in certain waves/segments of ECG readouts/tracings.
- Differentiate between various sinus rhythms.
- Explore the actual difference between the terms dysrhythmia and arrhythmia.
- Identify and distinguish each atrial arrhythmia.
- Compare and contrast atrial and ventricular arrhythmia.
- Recognize what cardiac enzymes are and how they are used in cardiac diagnostics.
- Define venipuncture and view the proper procedures for performing venipuncture.
- Determine how arterial blood gases are acquired.
- Examine basic lung physiology and anatomy as it pertains to blood gases.
- Recognize what arterial blood gases can tell us about the cardiovascular system and how it is functioning.
- Describe an echocardiogram and how it works.
- Explain what an echocardiogram reveals.
- Examine the necessary preparation for a patient before having an echocardiogram.
- Examine various echocardiogram images.
- Explore various types of echocardiograms and examine case studies of patients and their echocardiograms.
- Describe angiography and what it is used for.
- Explore the necessary preparation for angiography and examine various types of angiographies.
- Explore the definition and use of a CAT scan.
- Explore information about MRI.
- Examine the process and use of positron emission tomography.
- Examine the process and use of a tilt table test.
- Explore cardiac catheterization.
- Investigate various types of stress testing.
- Explore the advantages of using a holter monitor.
- Examine the use of chest x-ray in cardiac diagnostics.



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