NHA Certified EKG Technician Exam Guide

Updated September 2022

Overview

This document is designed to give instructors guidance on preparing students to become certified EKG technicians.

The National Healthcareer Association (NHA) provides an industry certification in EKG that can be taken by high school students. NHA's certificate is called the **Certified EKG Technician (CET)**.

This document is based on the September 2018 version of the NHA CET exam.

Outline

In this guide, you will find:

1. NHA CET exam eligibility requirements
2. Certification exam topic outline
3. HealthCenter21 modules recommended for CET exam prep
4. An in-depth crosswalk of HealthCenter21 to the NHA Test Plan
5. Additional resources for NHA CET exam prep
6. Additional EKG technician certification options

1. Eligibility Requirements for the NHA CET Exam

In order to sit for the NHA CET exam, students must have all of the following:

1. A high school diploma or GED equivalency
2. Completion of an EKG technician training or education program within the last five (5) years – **or** – at least one (1) year of supervised work experience with EKGs within the past three (3) years
3. Evidence that she/he has performed a minimum of 10 EKGs on live individuals

High school students may earn provisional certificates prior to graduation. Key information to note includes:

1. High school students who meet eligibility requirements must register for the exam within 12 months before graduation
2. A provisional certificate expires 12 months from the exam date
3. After graduation, graduates may apply to convert the active provisional certificate to a full certificate

2. NHA CET Exam Topic Outline

Core knowledge for an EKG technician includes three parts:

1. Basic anatomy and physiology of the heart
2. Emergencies related to cardiac testing: syncope, chest pain, abnormal vitals, etc.
3. Cardiopulmonary resuscitation and basic life support

The NHA CET exam measures this knowledge by asking questions across three domains:

1. Safety, Compliance, and Coordinated Patient Care - 32 questions
2. EKG Acquisition - 44 questions
3. EKG Analysis and Interpretation - 24 questions

For more details on the NHA CET exam content, see www.nhanow.com

3. HealthCenter21 Modules Recommended for CET Exam Prep

HealthCenter21 has 11 modules that will help your students pass the CET exam.

Each of the following modules aligns with one or more items listed on the NHA CET Test Plan:

1. A&P – Introduction to Anatomy and Physiology and A&P – Cardiovascular System
2. CPR and Basic Life Support
3. Client Status
4. Communications
5. Electrocardiography
6. Health Information Technology
7. Infection Control
8. Legal and Ethical Responsibilities
9. Medical Office Assistant
10. Safety Precautions

See the next page for an in-depth crosswalk between HealthCenter21 and the NHA CET Test Plan.

The coverage of each topic within HealthCenter21 is broken down as being High, Medium, Low, or Not Covered.

4. Crosswalk Between NHA EKG (CET) Test Plan & HealthCenter21

Domain 1: Safety, Compliance, and Coordinated Patient Care (32 Items)	HealthCenter21 Location	HealthCenter21 Coverage
A. Adhere to HIPAA regulations. *Supporting Knowledge* 1. HIPAA regulations	**Module:** Health Information Technology **Module:** Legal and Ethical Responsibilities	High
B. Adhere to infection control practices (e.g., OSHA, universal precautions). *Supporting Knowledge* 1. Guidelines regarding infection control (e.g., OSHA, universal precautions)	**Module:** Infection Control **Module:** Safety Precautions	High
C. Adhere to scope of practice and comply with ethical standards. *Supporting Knowledge* 1. Scope of practice of the EKG technician 2. Ethical standards related to the practice of EKG technicians (e.g., NHA Code of Ethics)	**Module:** Electrocardiography Unit 3, Lesson 4 **Module:** Legal and Ethical Responsibilities Unit 4, Lesson 2	High Ethical standards and scope of practice are not covered in detail.
D. Communicate appropriately with patients and members of the multidisciplinary health care team. *Supporting Knowledge* 1. Communication methods and techniques 2. Factors that affect communication with patients (e.g., culture, language, religion, developmental level, gender, disability) 3. Roles and responsibilities of members of the interdisciplinary health care team	**Module:** Communications **Module:** Electrocardiography Unit 6 - Communication Exercise	High
E. Obtain and interpret patient vital signs. *Supporting Knowledge* 1. Emergencies related to cardiac testing (e.g., syncope, chest pain, abnormal vitals) 2. Methods for obtaining vital signs 3. Normal vital signs across the lifespan	**Module:** Client Status **Module:** CPR and Basic Life Support **Module:** Electrocardiography Unit 3, Lesson 4	High

F. Instruct patients about preparation for and expectations during stress testing. *Supporting Knowledge* 1. Patient preparation for stress testing 2. Types of stress tests	**Module:** Electrocardiography Unit 5, Lesson 1	High
G. Instruct patients on use of ambulatory monitoring (e.g., Holter, event), and verify their understanding. *Supporting Knowledge* 1. Instructions for patient use of ambulatory monitors 2. Types of ambulatory monitors	**Module:** Electrocardiography Unit 5, Lesson 2	High
H. Utilize electronic medical records/electronic health records (EMR/EHR) to input patient information (e.g., patient history, medications, vitals, completed EKG). *Supporting Knowledge* 1. Basic elements and processes related to electronic medical records/electronic health records (EMR/EHR) (e.g., fields, transmit or upload results)	**Module:** Health Information Technology **Module:** Medical Office Assistant Unit 1, Lessons 1-3	High
I. Recognize signs and symptoms of cardiopulmonary compromise. *Supporting Knowledge* 1. Emergencies related to cardiac testing (e.g., syncope, chest pain, abnormal vitals) 2. Cardiopulmonary resuscitation and basic life support 3. Normal vital signs across the lifespan 4. Signs or symptoms of cardiopulmonary compromise	**Module:** CPR and Basic Life Support	High

Domain 2: EKG Acquisition (44 Items)	**HealthCenter21 Location**	**HealthCenter21 Coverage**
A. Maintain EKG equipment (e.g., load paper, replace clips, disinfect machines and leads). *Supporting Knowledge* 1. EKG equipment maintenance and cleaning requirements (e.g., paper loading, clip replacement, machine and lead disinfection)	**Module:** Electrocardiography Unit 3, Lesson 4	High

2. Supplies needed to perform or assist in cardiac tests 3. Equipment needed to perform or assist in cardiac tests		
B. Verify EKG machine settings (speed, gain). *Supporting Knowledge* **1.** Machine settings for acquiring tracing (e.g., speed, gain)	**Module:** Electrocardiography Unit 3, Lesson 2	High
C. Prepare skin for electrode placement. *Supporting Knowledge* 1. Supplies needed to perform or assist in cardiac tests 2. Methods to prepare the skin for application of EKG electrodes	**Module:** Electrocardiography Unit 3, Lesson 4	High
D. Position patient for cardiac testing (e.g., 3-, 5-, 12-lead, stress test, telemetry). *Supporting Knowledge* 1. Positioning considerations for special patient populations (e.g., amputees, respiratory issues, late-term pregnancy) 2. Positioning protocols for specific cardiac tests	**Module:** Electrocardiography Unit 3, Lesson 3 & 4	High
E. Apply electrodes and attach leads for: 1. Standard 12-lead EKG 2. Ambulatory (e.g., Holter, event) monitoring 3. Stress testing 4. Telemetry 5. Patients who have special considerations (e.g., right-sided heart, posterior chest, amputations, pediatric) *Supporting Knowledge* 1. Basic anatomy and physiology of the heart 2. Location of electrode application for various cardiac tests 3. Lead placement and troubleshooting 4. Types of EKG acquisition (e.g., 3-, 5-, 12-lead, stress test, telemetry) 5. Types of cardiac monitoring (e.g., ambulatory, stationary)	**Module:** Electrocardiography Unit 3, Lesson 4 **Module:** Electrocardiography Unit 5, Lessons 1 & 2 **Module:** A&P – Cardiovascular System Units 1-3, 7, & 8	High

F. Verify that all leads were recorded. *Supporting Knowledge* 1. Lead placement and troubleshooting 2. Elements of complete EKG tracing	**Module:** Electrocardiography Unit 2, Lesson 2	High
G. Identify and resolve artifacts from the tracing (e.g., wandering baseline, somatic, electrical). *Supporting Knowledge* 1. Causes and types of artifacts (e.g., wandering baseline, somatic tremor, AC interference) 2. Methods to resolve artifacts	**Module:** Electrocardiography Unit 3, Lesson 3	High
H. Mount a completed EKG tracing strip for patient's chart. *Supporting Knowledge* **1.** Mounting EKG rhythm strips	**Module:** Electrocardiography Unit 3, Lesson 4	High
I. Assist in monitoring patient condition during stress testing. *Supporting Knowledge* 1. Emergencies related to cardiac testing (e.g., syncope, chest pain, abnormal vitals) 2. Signs of adverse reaction during stress testing (e.g., shortness of breath, chest pain, abnormal vitals)	**Module:** Electrocardiography Unit 5, Lesson 1	High
J. Provide support in responding to complications during stress testing. *Supporting Knowledge* 1. Emergencies related to cardiac testing (e.g., syncope, chest pain, abnormal vitals) 2. Cardiopulmonary resuscitation and basic life support 3. Signs of adverse reaction during stress testing (e.g., shortness of breath, chest pain, abnormal vitals)	**Module:** Electrocardiography Unit 1, Lesson 3	High

Domain 3: EKG Analysis and Interpretation (24 Items)	**HealthCenter21 Location**	**HealthCenter21 Coverage**
A. Calculate patient's heart rate from the EKG tracing. *Supporting Knowledge* 1. Formulas to determine maximum and target heart rates 2. Methods to calculate heart rate (e.g., 6-second method, R-R interval, sequencing) 3. Units of measurement of graph paper	**Module:** Electrocardiography Unit 4, Lesson 2	High
B. Determine the regularity of the patient's heart rhythm from the EKG tracing. *Supporting Knowledge* 1. Regular and irregular heart rhythms 2. Units of measurement of graph paper	**Module:** Electrocardiography Unit 4, Lesson 2	High
C. Measure EKG intervals and waveforms (e.g., PR interval [PRI], QRS duration, QT interval). *Supporting Knowledge* 1. Basic anatomy and physiology of the heart 2. Electrical conduction 3. Techniques for measuring waveforms 4. Units of measurement of graph paper	**Module:** Electrocardiography Unit 1, Lesson 2	High
D. Inspect the waveform characteristics (P waves, QRS complexes, ST segments, T waves) for symmetry, direction, and amplitude. *Supporting Knowledge* 1. Normal and abnormal waveform duration and intervals 2. Normal and abnormal waveform characteristics 3. Electrolyte abnormalities	**Module:** Electrocardiography Unit 1, Lesson 2	High
E. Identify arrhythmias (sinus, atrial, ventricular, junctional, heart blocks) from the EKG tracing. *Supporting Knowledge* 1. Basic anatomy and physiology of the heart 2. Emergencies related to cardiac testing (e.g., syncope, chest pain, abnormal vitals)	**Module:** Electrocardiography Unit 4, Lesson 1	High

3. Types of arrhythmias (sinus, atrial, ventricular, junctional, heart blocks)		
F. Recognize pacemaker spikes on an EKG tracing. *Supporting Knowledge* 1. Spikes caused by pacemakers	**Module:** Electrocardiography Unit 3	High
G. Identify ischemia, injury, and infarction on the EKG tracing. *Supporting Knowledge* 1. Emergencies related to cardiac testing (e.g., syncope, chest pain, abnormal vitals) 2. Normal and abnormal waveform characteristics 3. Variances in waveforms related to ischemia, injury, and infarction	**Module:** Electrocardiography Unit 4	Medium
H. Take appropriate action when life-threatening arrhythmias are identified. *Supporting Knowledge* 1. Emergencies related to cardiac testing (e.g., syncope, chest pain, abnormal vitals) 2. Cardiopulmonary resuscitation and basic life support 3. Life-threatening arrhythmias (e.g., ventricular fibrillation, ventricular tachycardia)	**Module:** Electrocardiography Unit 4 **Module:** CPR and Basic Life Support	High

5. Additional Resources for NHA CET Exam Prep

Because HealthCenter21 does not cover 100% of the information students need to pass the NHA CET exam, instructors will need to include additional supplementary resources.

Resources from NHA

- Video - What It's Like to Take an NHA Certification
- PDF - 2017 NHA CET Test Plan

Study Resources

- EKG Academy - https://ekg.academy/
- Practical Clinical Skills - https://www.practicalclinicalskills.com/ekg
- Study Stack - https://www.studystack.com/flashcard-646322
- Quizlet - https://quizlet.com/darby318

Online Simulators

- ACLS Medical Training - ECG Simulator
- SkillStat - ECG Simulator
- Dart Sim - ECG Simulator
- Life in the Fastlane - ECG Library
- Life in the Fastlane - 100 ECG Quiz
- ECG Simulator – Create Example ECG Strips

6. Additional EKG Technician Certification Options

Interested in getting students certified, but don't plan to use the NHA exam?

Here are three other options for EKG technician certifications:

- **American Medical Certification Association:** EKG Technician Certification
- **National Center for Competency Testing:** National Certified ECG Technician
- **American Education Certification Association:** Certified EKG Technician