**DHigh Plains Technology Center**

**Health Careers**

**Learning Activity Packet (LAP) for Electrocardiograph Technician**

**Related unit of instruction:**

Analyze EKG Tracing

**Approximate Completion time:**

15 hours

**Rationale for the Lap:**

This LAP is designed to help the student learn to interpret and evaluate electrocardiogram tracings.

**Criteria for successful completion:**

By the end of this LAP the student will

1. Read and turn in work sheets for Chapters 13-19 in Ellis’ EKG Plain and Simple, 2nd Edition book.
2. Pass the tests for each chapter.

**Learning Objective:**

*How to Interpret a 12-Lead EKG Chapter 13*

1. List the six steps to 12-lead EKG interpretation.
2. Determine the axis quadrant on a variety of practice EKGs.
3. Determine if right or left bundle branch blocks exist.
4. Identify right and left ventricular hypertrophy.
5. Determine if any miscellaneous effects are present.

*Myocardial Infarction Chapter 14*

1. Describe the difference between Q wave myocardial infarction (MI) and non-Q wave MI.
2. Describe the three Is of infarction.
3. Describe what EKG changes are associated with ischemia, injury and infarction.
4. Draw the different kinds of ST segment abnormalities and explain what each implies.
5. Draw the different T wave abnormalities and explain what each implies.
6. Describe how a significant Q wave differs from a normal Q wave.
7. Describe normal R wave progression.
8. Identify the transition zone in a variety of EKGs.
9. Describe where the transition zone is for clockwise and counterclockwise rotation.
10. Describe the EKG changes associated with MI evolution and give the timeline associated with each change.
11. Explain how to determine the age of an MI.
12. Name the four walls of the left ventricle.
13. Name the leads that look at each of the four walls of the left ventricle.
14. Describe an easy way to find posterior MIs.
15. Name the coronary artery that feeds each of the four walls of the left ventricle.
16. Describe how to determine if a right ventricular infarction is present.
17. Describe precordial lead placement for a right-sided EKG.
18. Describe how pericarditis and early repolarization mimic an MI.

*Artificial Pacemakers Chapter 15*

1. State the primary function of a pacemaker.
2. Outline the indications for a pacemaker.
3. Name the two components of a permanent pacemaker.
4. Describe the types of temporary pacemakers.
5. Define the terms firing, capture and sensing.
6. State what each letter of the pacemaker code means.
7. Identify pacemaker rhythms as being either VVI or DDD.
8. Identify the different kinds of pacemaker malfunctions.

*12-Lead EKG Practice Chapter 16*

1. Practice the six steps in analyzing EKGs.
2. Using this method, correctly interpret a variety of 12-lead EKGs.

*Cardiac Medications and Electrical Therapy Chapter 17*

1. Describe the effect of each class of antiarrhythmic medication on the action potential.
2. Give examples of each class of antiarrhythmic medication.
3. Describe the effects of digitalis and adenosine on the heart rate.
4. Name the emergency medications and describe the mode of action of each.
5. Describe the danger of giving supplemental oxygen to patients with chronic lung disease.

*Diagnostic Electrocardiography Chapter 18*

1. Define stress testing.
2. State the goal of stress testing.
3. Define MET.
4. Describe the indications for stress testing.
5. Describe the relative and absolute contraindications to stress testing.
6. State how to calculate target heart rate.
7. Describe how a stress test is done.
8. Describe how a pharmacologic stress test is done.
9. Name the three most commonly used protocols for treadmill exercise testing.
10. Describe the reasons to terminate the test.
11. Describe normal signs and symptoms during the stress test.
12. Describe the normal EKG changes that occur during stress testing.
13. Describe the EKG changes that indicate a positive stress test.
14. Explain Bayes’s theorem as it relates to the reliability of stress testing.
15. Define specificity and sensitivity.
16. Describe the indications for Holter monitoring.
17. State the contraindications to Holter monitoring.
18. Describe the artifact associated with Holter monitoring.
19. Explain why an event monitor might be superior to a Holter monitor for some patients.
20. State what a positive Holter or event monitor is.

*Putting It All Together: Critical Thinking Scenarios Chapter 19*

1. Correlate certain rhythms and 12-lead EKGs with their treatment.
2. Display critical thinking skills.