

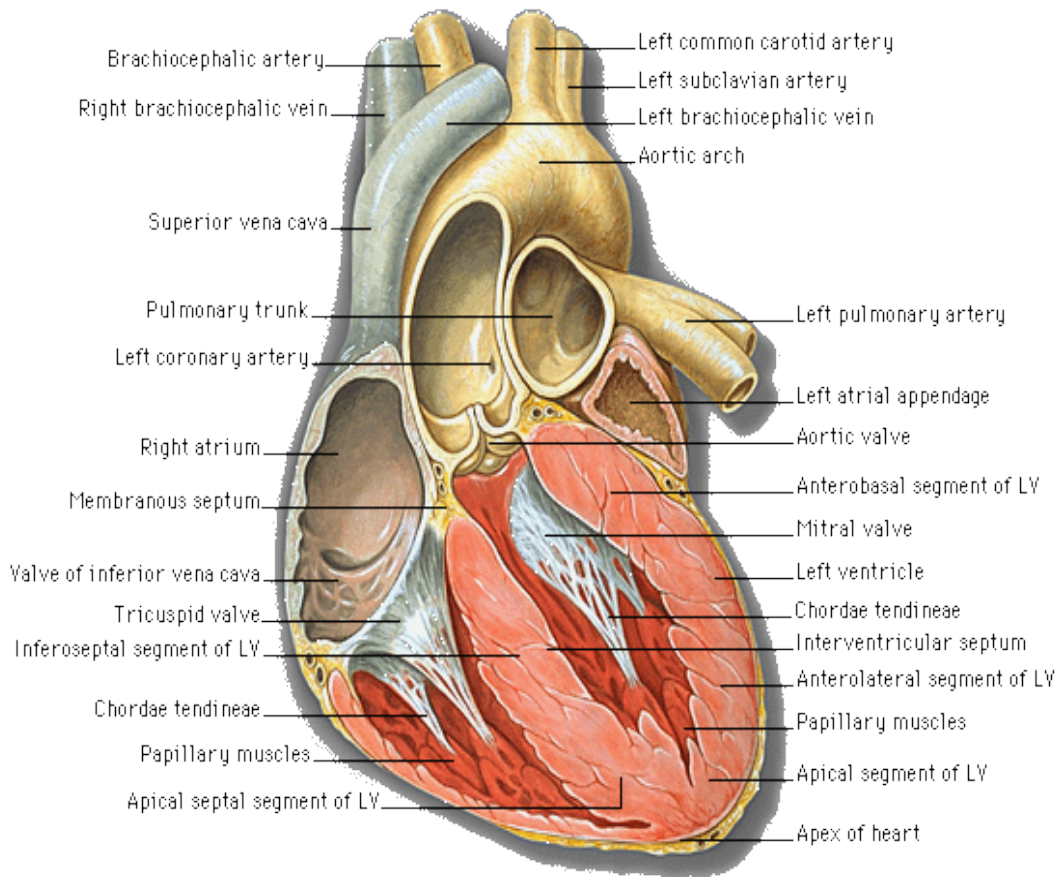


12 Lead Competency Study Guide

In preparation for your pre-hire appointment please review the current statewide treatment protocols and 12 lead competency study guide.

1. Statewide Treatment Protocol 3.1 Acute Coronary Syndrome (ACS) (and related Appendices,), as well as the other related Protocols that would be suggestive of 3.1, such as Shock of Unknown Etiology, Syncope of Unknown Etiology, Respiratory Distress, Acute Abdomen, DKA.
2. The appropriate clinical circumstances to obtain a 12-lead ECG (ACS-like symptoms that are of a non-traumatic etiology are to be viewed as being of cardiac origin until proven otherwise).
 - a. Classic Anginal Chest Pain
 - i. Central anterior pain
 - ii. Chest Pressure, tightness
 - iii. Crushing, radiates to arm, neck, back
 - b. Atypical Presentation (Geriatrics, Diabetics and Women)
 - i. Epigastric discomfort
 - ii. Musculoskeletal
 - iii. Often unilateral
 - c. Anginal Equivalents:
 - i. Generalized weakness
 - ii. Dyspnea
 - iii. Excessive sweating
 - iv. Dizziness
 - v. Syncope or near syncope
 - vi. Fatigue
 - vii. Palpitations
 - viii. DKA
 - ix. Exercise-induced pain in the abdominal region, back, jaw, arm, or shoulder
3. Blocks
 - a. Right Bundle Branch Block
 - b. Left Bundle Branch Block
 - c. First Degree AV Block
 - d. Second Degree AV Type I
 - e. Second Degree AV Type II
 - f. Third Degree

4. Know the anatomical relationships of coronary artery and myocardial anatomy as well as anatomical groupings. (Left Coronary Artery [LCA], Left Anterior Descending [LAD], Left Circumflex [LCX], Right Coronary Artery [RCA], Right Posterior Descending Artery [RPDA], Right Marginal [R Marginal])
- Inferior RCA, LCX
 - Inferior-RV Proximal RCA
 - Inferoposterior RCA, LCX
 - Isolated RV LCX
 - Isolated Posterior RCA, LCX
 - Anterior LAD
 - Anteroseptal LAD
 - Anteroseptal-lateral Proximal LAD
 - Antero, infero or posterolateral LCX



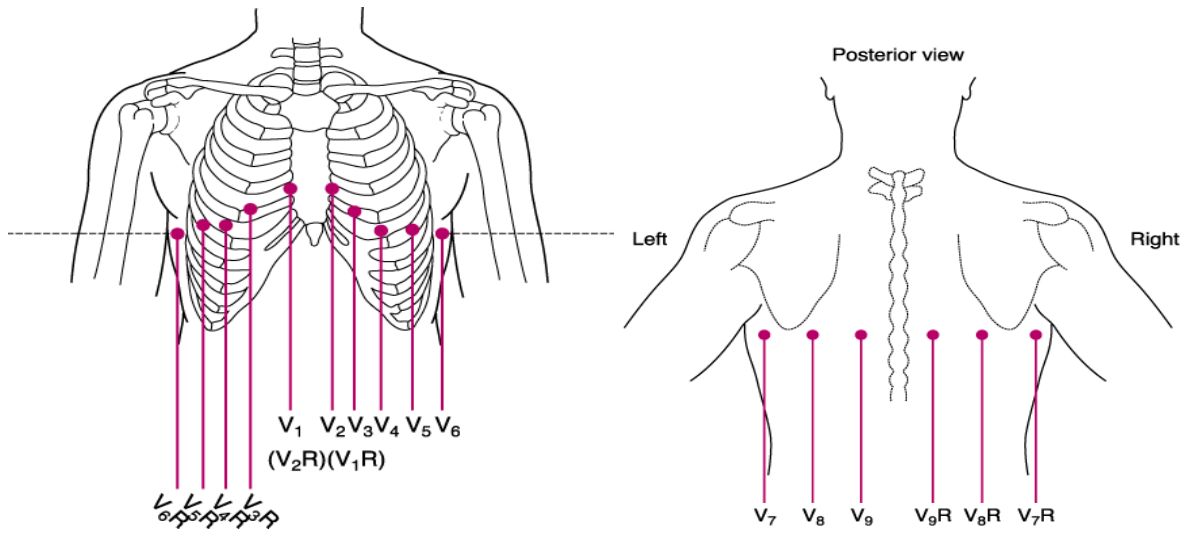
I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL High Lateral	V2 Septal	V5 Low Lateral
III Inferior	aVF Inferior	V3 Anterior	V5 Low Lateral

5. Recognition of classic patterns of myocardial ischemia, injury and infarction:
 - a. ST depression & inverted T Wave
 - b. ST elevation & inverted T Wave
 - c. Pathological Q wave, ST elevation & Inverted T Wave

6. Identify the underlying rhythm, rate and any associated ectopy. You will need to put the 12-lead ECG into one of the following categories:
 - a. Definite STEMI or New LBBB
 - b. Possible STEMI
 - c. Suspicious for Ischemia
 - d. Non-Diagnostic

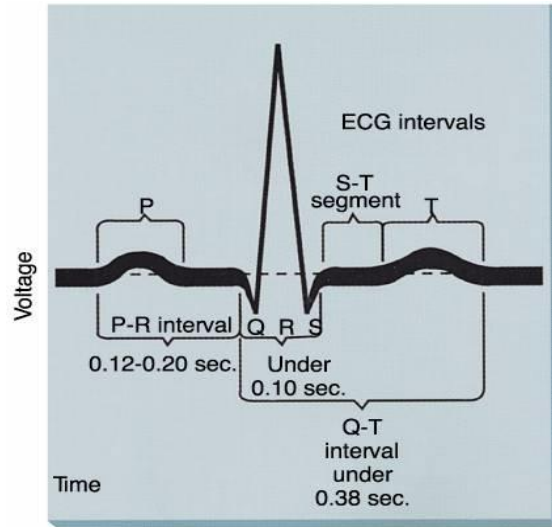
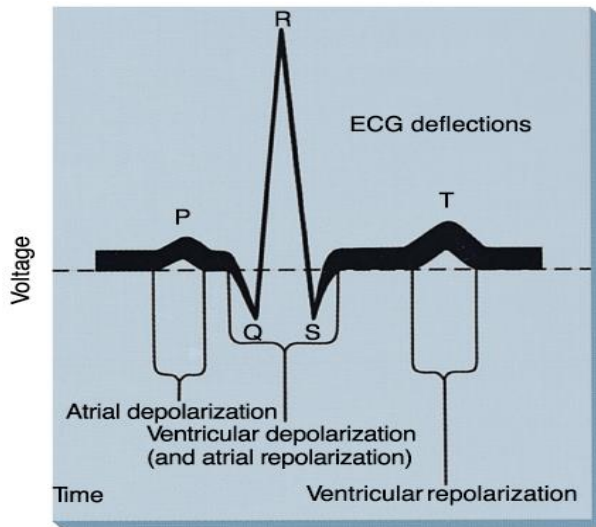
7. ACS imitators - rhythms or patterns (may cause ST elevation)
 - a. Left Ventricular Hypertrophy (LVH) and its ST segment changes
 - b. Pericarditis;
 - c. IdioVentricular Rhythms (IVR)
 - d. Accelerated IdioVentricular Rhythms (AIVR),
 - e. PVCs, runs of VT, or sustained VT
 - f. Artificially actively V Paced Rhythms
 - g. Early Repolarization
 - h. Brugada Syndrome
 - i. Pulmonary Embolism
 - j. Hypothermia
 - k. Metabolic induced changes in the QRS, ST, and T-wave
 - i. hyper / hypokalemia
 - ii. hyper/hypocalcemia
 - l. Drug induced changes.
 - i. Short QT interval (Digoxin)
 - ii. Long QT interval (antiarrhythmics, antivirals, psychotropic medication, or chemotherapy)

8. The actual acquisition of a 12-lead ECG (You will need to indicate the proper placement of the electrodes on a diagram and print a 12 Lead Strip on a Zoll E-Series Monitor)
 - a. correct anatomical locations of electrodes
 - b. Left Side
 - c. Right side
 - d. Posterior



9. Waveforms, Segments, Complexes and Intervals

- a. P Wave
- b. QRS Complex
- c. QT Interval
- d. T Wave
- e. ST Segment
- f. PRI
- g. Q Wave



NOTE: This competency exam will not include Axis Deviation or R Wave Progression questions.

Bibliography

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