

MEMS Proposed 12-Lead ECG Training Outline

May 31 Draft

Notes:

This outline is based on the objectives of the following national and local 12-lead ECG programs:

Bob Page, Multi-Lead Medic (8-hours)

Tim Phelan, 12-Lead ECG in ACS (8-hours)

Anne Fereday, 12-Leads in 12 seconds (2-hours)

Paul Plumer, Paramedic 12-lead ECG, (8-Hours)

Scope:

This program is designed for personnel with no prior 12-lead training. It does, however, assume the provider has been previously trained at or above the EMT-Intermediate level and therefore has a limited background in basic 3-lead cardiology. If this program is to be adopted into an ALS licensure program, it must be accompanied by the applicable NHTSA National Standard EMS Curriculum objectives for cardiology.

If a review session is necessary or desired, the review items may be omitted.

Outline:

I. Review of the Basics *(this section should be considered a quick review and therefore take minimal time)*

- a. Basic Electrophysiology
 - 1. Conduction pathways (review)
 - 2. Polarization-Depolarization-Repolarization (review)
- b. Rhythm Review
 - 1. Sinus, SupraVentricular, Junctional, Ventricular, AV blocks
- c. Ischemia, Injury and Infarct (review)
 - 1. Coronary artery (review)
- d. The electrocardiogram (this section should be considered a quick review and therefore take minimal time)
 - 1. Eintoven's triangle (review)
 - 2. Limb leads (standard and augmented) (review)
 - 3. Precordial Leads (review)

II. Basic ECG interpretation *(this section should be considered a quick review and therefore take minimal time)*

- a. P-waves, PRI, QRS, ST
- b. Rate, rhythm, etc. (review)

III. Intro to 12-Lead

- a. Vectors and Axis
- b. Bob Page axis and fascicular block chart

IV. Acquisition, Lead Placement

- a. Assessing the patient, not the machine
- b. Lead placement
- c. Validating placement (Lead I, R-wave progression)

V. ACS

- a. The sequence of ACS
- b. Triaging ACS
- c. STEMI - discussion regarding PTCA
- d. Recognizing Ischemia, Injury and Infarct
 1. ST and T wave changes
 2. Contiguous leads
 3. Reciprocal changes
 4. Infarct Imitators

VI. BBB

- a. Using V-1 to determine BBB

VII. Tachy-Dysrhythmias

- a. Using 12- leads to determine V-tach

VIII. VR4, V7-9

- a. Discussion of IMI with Post, RV involvement

IX. Practice Session

- a. 12-Lead acquisition
- b. 12-Lead interpretation