**INDICATIONS**
1. Conscious, stable patients presenting with presumed signs and symptoms of cardiac origin
2. Chest pain or pressure of presumed cardiac etiology
3. Shortness of breath of presumed cardiac etiology
4. Syncope
5. Resuscitated cardiac arrest patient
6. Suspected CVA patients
7. Post synchronized cardioversion

**PRECAUTIONS**
1. Do not significantly delay transport to conduct test.
2. On female patients, always place leads V3 – V6 under the breast rather than on the breast.
3. Never use the nipples as reference points for electrode location as nipple locations may vary widely.
4. A “normal” ECG does not definitively rule out a MI nor should it be justification for nontransport.
5. Women, the elderly, and persons with diabetes may present with atypical S&S of AMI.

**PROCEDURE**
1. Whenever possible, attempt to obtain 12-lead with patient in supine position. If patient does not tolerate, place in semi-reclining or sitting position. Document the patient’s position.
2. Document patient name, sex, and age. Leave ECG size preset at x 1.
3. Prep the skin and shave hair as necessary.
4. Apply electrodes as follows and attach the appropriate lead to an electrode:
   - **Lead (extremity)** Leads: Precordial (chest) Leads:
     - Right arm (RA) – Right forearm
     - Right leg (RL) – Right calf
     - Left arm (LA) – Left forearm
     - Left leg (LL) – Left calf
   - V1 – Fourth intercostal space to the right of the sternum
   - V2 – Fourth intercostal space to the left of the sternum
   - V3 – Directly between leads V2 and V4
   - V4 – Fifth intercostal space at midclavicular line
   - V5 – Level with V4 at left anterior auxiliary line
   - V6 – Level with V5 at left midaxillary line
5. Secure the cable with the cable clasp to an item of the patient’s clothing.
6. Attempt to obtain the 12-lead while the vehicle is not moving. Ask the patient to remain motionless and breathe normally for 10 seconds. Acquire and print two copies of the 12-lead ECG report.
7. If the monitor detects signal noise (such as patient motion or a disconnected electrode), the 12-lead acquisition is interrupted until noise is removed. Take appropriate action as required (such as reconnecting leads).
8. Interpretation should be relayed to receiving hospital during patient report. Document “Obtained 12-lead ECG” on patient run report and attach one copy to run report.
9. Notify receiving hospital immediately after 12-lead has been performed and found to meet Cath Lab Activation Criteria. Leave one copy of 12-lead with receiving physician.
10. Replace supplies and service per manufacturer recommendations.

**SPECIAL NOTES**
1. Locating the V1 position (fourth intercostal space) is critically important because it is the reference point for locating the placement of remaining V leads. To locate the V1 position:
   - A. Place your finger at the notch in the top of the sternum. Move your finger slowly downward about 1.5 inches until you feel a slight horizontal ridge or elevation. This is the “angle of Louis” where the manubrium joins the body of the sternum.
   - C. Locate second intercostal space on the right side, lateral to and just below the angle of Louis.
   - D. Move your finger down two more intercostal spaces to the fourth intercostal space, which is the V1 position.
2. Because treatment can affect how ST-elevation looks on a 12-Lead, the 12-Lead should be performed with the initial set of vital signs and before the administration of nitroglycerine.
3. Patients with ST-Elevation should be transported to a facility that can have the patient in their cath lab within 60 minutes and have balloon inflation under 90 minutes. Regions Hospital EMS has received confirmation from Regions, United, St. Joseph’s, University of Minnesota, and the VA Hospital of their ability to meet the above criteria.