PURPOSE:
Electrocardiogram (ECG or EKG) monitoring uses electrodes placed on the patient’s chest to transmit electrical signals that are converted into a tracing or displayed on an oscilloscope. It is a recording of the heart’s electrical impulse.

CONSIDERATIONS:
1. Three types of monitors may be used:
   a. Hardwire - the patient is directly connected to the oscilloscope or tracing device that displays or records a real-time tracing.
   b. Telemetry - the patient is connected to a small portable transmitter that sends a real-time signal to be displayed or recorded at a remote receiving station.
   c. Recorder - device records the patient’s heart rate and rhythm on a magnetic tape, either for a designated length of time or on demand. The tape may be transmitted or sent to a base station for analysis.
2. Indications for home ECG monitoring are:
   a. Diagnosis in patients with cardiovascular symptoms, suspected dysrhythmias or known coronary artery disease.
   c. Identification of asymptomatic patients with coexisting medical conditions that place them at high risk for sudden death.
3. Obtain physician order.
4. The monitor may be obtained from and applied by the physician’s office, a medical equipment company or the homecare nurse.
5. Education to the patient/caregiver regarding use and safety measures should be initiated by the physician and/or medical equipment supplier and will depend on the type and purpose of the monitor.
6. The patient should not swim or bathe with the monitor in place.
7. The patient should not have X-rays or nuclear studies done, or come in contact with strong magnetic fields such as Magnetic Resonance Imaging (MRI) if an ECG recorder is being used.

SPECIAL CONSIDERATIONS:
1. Avoid opening the electrode packages until just before using them to prevent the gel from drying out.
2. Avoid placing the electrodes on bony prominences or hairy areas.
3. If the patient’s skin is exceptionally oily, scaly or diaphoretic, rub the electrode site with a dry 4x4 gauze pad before applying the electrode to help reduce interference in the tracing.
4. Assess skin integrity and reposition the electrodes every 24 hours, or as necessary.
5. If the patient is being monitored by telemetry, show him/her how the transmitter works. If applicable, show him/her the button that produces a recording of his/her ECG or signal at the central station. Teach patient how to push the button whenever he/she has symptoms. Depending on the monitoring system, this records an event and causes the central console to print a rhythm strip. Stress that the patient shouldn’t remove the unit.

EQUIPMENT:
- Monitor
- Lead wires, electrodes
- Patient cable
- Alcohol wipes
- Gauze
- Shaving supplies and washcloth (optional)
- Batteries, if needed
- Recording tape, if needed
- Belt and carrying case, if indicated
- Patient symptom diary, if appropriate

PROCEDURE:
1. Adhere to Standard Precautions.
2. Explain purpose and procedure to patient.
3. Connect lead wires and patient cable to monitor, according to manufacturer’s instructions.
4. Plug monitor into electrical outlet, or for telemetry or recorder, insert new battery into monitor. Insert tape into recorder.
5. Determine electrode placement on the patient’s chest according to the system and lead in use.
6. If necessary, shave an area about 4 inches in diameter around each electrode site. Clean the area with an alcohol wipe and dry it completely. Gently abrade the dried area by rubbing it briskly until it reddens with dry gauze or washcloth.
7. Apply electrodes to the sites by removing backing and pressing firmly. Pre-gelled electrodes should feel moist when the backing is removed. If the gel is dry, discard and replace with a fresh electrode.
8. Attach a leadwire to each electrode following manufacturer’s instructions. Lead wires are usually labeled to indicate correct placement, such as: RA - right arm, LL - left leg.
9. Verify that a good quality tracing is being received, if using hardwire or telemetry.
10. If performing telemetry or recording, place the ECG transmitter or recorder in the pouch.
11. If performing telemetry of ECG recording, reinforce physician’s instructions. Demonstrate how the patient is to operate the monitor. Instruct in use of a symptom diary, if appropriate.
12. Discard any soiled supplies in appropriate container.
AFTER CARE:

1. Cleanse electrode sites with soap and water when electrodes are removed.
2. Document in the patient’s record:
   a. Procedure performed, date and time.
   b. Electrode position.
   c. Teaching and response of patient/caregiver.
   d. Patient tolerance to procedure.
   e. Record a rhythm strip and label with the patient’s name, number, date and time.
   f. Purpose for monitoring (indication) the patient.
   g. Presence of pacemaker (PPM) or Implanted Defibrillator (ICD).

REFERENCES