Assess for high risk populations:
- MI
- CHF
- ENDOCRINE DISORDERS: hypo/hyperthyroidism, adrenal dysfunction, parathyroid dysfunction
- INCREASED Intracranial pressure for cerebral disorders
- ELECTROLYTE IMBALANCE; especially potassium, magnesium, calcium
- Atherosclerosis/CAD
- HYPOXIA, COPD
- CARDIOMYOPATHY
- VALVULAR HEART DISEASE
- ANEMIA
- POST-OP CARDIAC SURGERY
- ANXIETY
- PAIN
- HYPOVOLEMIA
- MEDICATIONS/recreational drugs that have PROARRHYTHMIC EFFECT; tachy/brady arrhythmias can occur following administration

Are Risk Factors Present?

Monitor for presence of signs/symptoms:
- Change in mental status; syncope, weakness,
- Complaints of fatigue, activity intolerance
- Complaints of palpitations, unusual feeling in chest
- Pallor, diaphoresis
- Complaints of ischemic chest discomfort
- Change in pulse (including pulselessness)

Initiate client education for Health Seeking Behaviors to identify:
- No smoking, limit alcohol and avoid illicit drug use
- Teach symptoms of known risk factors to report
- Encourage periodic evaluation
- Signs and symptoms for early detection of disease

Are positive findings present?

Initiate the plan of care for a Risk For Ineffective Therapeutic Regimen management:
- Encourage client to collaborate with the healthcare team in treating known risk factors; Blood pressure control, ischemic heart disease, structural defects, endocrine disorder management and cholesterol management
- Encourage client to seek consultation at periodic intervals for the evaluation of dysrhythmias
- Review medications and procedures indicated in dysrhythmia management
- Teach client to report changes in heart rhythm and rate
- Patient teaching from box 1

Follow plan of care PC: dysrhythmia

Are symptoms manifesting?
**PC: DYSRHYTHMIA**

### ASSESS s/s of dysrhythmia
- Palpitations, syncope, Light-headedness, dizziness, Chest pain
- Shortness of breath, Paleness
- Sweating, Cardiac arrest

### Assess for cardiac & extracardiac contributing factors:
- Ischemia
- Cardiac structure anomaly.
- Cardiac conduction tissue defect
- Physical/psychological stress
- Neurohormonal disorders
- Electrolyte disturbance
- Pro-arrhythmic effect of drugs & medications

### MONITOR
- If s/s of dysrhythmia are ischemic in origin
  - Refer to plan of care for myocardial ischemia
  - Perform 12 lead EKG and cardiac markers
- If s/s of dysrhythmia are mechanical defect in origin
  - Refer to plan of care for CHF
  - Perform 12 lead EKG, cardiac markers, echocardiogram and Chest x-ray
- Mon lab/diagnostics to isolate cause or contributing factors
  - Hypo/hyperkalemia, Hypo/hypermagnesia, anemia, Thyroid profile, drug toxicity screen
- Initiate Continuous Cardiac Monitoring and record telemetry monitoring strip q shift and prn enduring that diagnostic leads are used
- Monitor VS q 2-4 hours and prn
- Monitor pulse oximetry q 4 hours and prn

### DO
1. If arrhythmia are present assess for s/s of dysrhythmia
   - Treat the client, not the monitor
2. If s/s of dysrhythmia are present, determine if unstable.
   - If unstable call rapid response team & Initiate ACLS protocols according to hospital policy
3. If s/s of dysrhythmia are present, follow standing orders
   - Initiate routine telemetry orders as prescribed
   - Administer antiarrhythmics according to arrhythmia type as prescribed and evaluate effectiveness
   - Administer electrolytes as prescribed
   - Prepare to initiate emergency procedures according to arrhythmia type:
     - Vagal maneuvers
     - Pacemaker
     - Defibrillation
     - Cardioversion
   - Apply oxygen therapy as needed for clients experiencing dysrhythmia
   - Mon BP, CM and client’s response
4. Teach client about additional diagnostic studies
   - Holter monitoring, EPS studies

### CALL
- Call for unstable BP readings, persisting arrhythmia and hemodynamic instability
- Call for s/s of CHF
- Call for s/s of ischemia
DYSRHYTHMIA MONITORING

Expected Practice:
- Select the best monitoring leads for dysrhythmia identification (display two leads when possible).
  - Lead V1 to diagnose wide QRS complex.
  - Lead II to diagnose atrial activity and measure heart rate.
- Proper electrode placement is required for accurate diagnosis (Figure 1).
- Prepare the patient’s skin before attaching ECG electrodes.
- Measure QT interval and calculate QTc using a consistent lead if high risk for Torsades de Pointes.

Scope and Impact of the Problem:
- Studies show that nurses often monitor in a single lead regardless of diagnosis.\(^{1-2}\)
- Failure to properly prep skin prior to electrode placement may cause inappropriate monitoring alarms.\(^{3,4}\)
- When an electrode is misplaced by as little as 1 intercostal space, QRS morphology can change and misdiagnosis may occur (i.e., ventricular tachycardia [VT] may be misidentified as supraventricular tachycardia [SVT] or vise versa.).\(^{5}\)

Supporting Evidence:
- \(V_1\) is the lead of choice to diagnose wide QRS complexes (VT vs. SVT with aberrant conduction; left vs. right BBB). A 5 lead monitoring system is required to monitor \(V_1\) leads. MCL\(_1\) may differ in QRS morphology as compared to \(V_1\) and should be used only when a 5 lead monitoring system is unavailable.\(^{6-10}\) (Level V)
- When \(V_1\) electrode placement is not possible, \(V_5\) may be used.\(^ {11}\) (Level IV)
- Electrode site preparation includes clipping excessive hair and cleansing oily skin with alcohol.\(^ {34}\) (Level IV)
- QTc > 0.50 sec (500 ms) is dangerously prolonged and associated with risk for Torsades de Pointes. The QT interval should be corrected for heart rate (QTc) and monitored with any of the following: \(^ {9-13,12,15}\) (Level IV)
  - Antidysrhythmic, antibiotic, antipsychotic, and other drugs that prolong QTc
  - Severe bradycardia
  - Hypokalemia or hypomagnesemia
  - Any drug overdose
- Perform an atrial electrogram (AEG) in cardiac surgical patients with atrial epicardial wires to assist in identifying atrial activity.\(^ {16,17}\) (Level V)

Pediatric Specific
Abnormal prolongation: QTc > 0.40 sec ± 10%. Pediatric limits are age specific and shorter than adult ranges.\(^ {18}\)

Actions for Nursing Practice:
- Ensure that your organization has written policies and procedures related to cardiac monitoring.
- Provide appropriate ECG education for staff.
- Develop proficiency standards for all staff involved with ECG monitoring to ensure accurate and effective monitoring.
Consider conducting an audit to assess:
- Electrode placement
- Lead selection

Need More Information or Help?
1. Audit tool for measuring compliance with lead selection and lead placement available at www.aacn.org
2. Talk with a clinical practice specialist for additional information / assistance (www.aacn.org, select PRN).

AACN Grading Level of Evidence
Level I: Manufacturer's recommendations only
Level II: Theory based, no research data to support recommendations:
           Recommendations from expert consensus group may exist
Level III: Laboratory data, no clinical data to support recommendations
Level IV: Limited clinical studies to support recommendations
Level V: Clinical studies in more than one or two patient populations and situations to support recommendations
Level VI: Clinical studies in a variety of patient populations and situations to support recommendations

References: