ELECTROCARDIOGRAM INTERPRETATION

Heart disease continues to be the leading cause of hospital admissions and mortality in the United States, accounting for an estimated 13% of admissions in 2001, and 21% of in-hospital deaths in 2000. The electrocardiogram (EKG), a graphical representation of cardiac electrical potentials, is a noninvasive, readily available diagnostic tool. It remains the most commonly used investigative modality for the initial evaluation of cardiovascular disease. Hospitalists interpret these results expediently and apply the results to estimate risk, diagnose disease, and determine therapeutic needs in the hospitalized patient.

KNOWLEDGE

Hospitalists should be able to:

- Explain the anatomy and physiology of normal and pathologic cardiac tissues, including spatial relationships, vascular supply, automaticity, conduction, and autonomic innervations and how these affect EKG interpretation.
- Compare the diagnostic utility of rhythm strips and telemetry monitors to 12-lead EKG.
- Explain indications for ordering an EKG, including right-sided EKG.
- Describe the implications of the acquisition, amplification, display, and standardization of electrocardiographic waveforms in different leads.
- Describe the relevant components of the EKG tracing.
- Explain the effect of cardiovascular, metabolic, toxic, and systemic disease processes on cardiac electrical potentials of the EKG.
- Explain the limitations of various EKG findings, including computerized interpretations.

SKILLS

Hospitalists should be able to:

- Demonstrate correct lead placement.
- Accurately measure and interpret the atrial and ventricular rates, voltages and intervals of EKG tracings.
- Recognize normal EKG findings, including variations associated with demographics, artifact, lead placement, and other technical problems.
- Recognize and categorize abnormal EKG findings, including abnormalities of conduction, automaticity, anatomy, and manifestations of non-cardiac disease.
- Identify paced rhythms and describe the limitations of related EKG interpretations.
- Synthesize EKG data with other clinical information to risk stratify patients and develop a clinical plan.

ATTITUDES

Hospitalists should be able to:

- Communicate with patients and families to explain results of the EKG and how the findings impact the care plan.
- Personally and promptly interpret EKGs and compare them to previously recorded EKGs, when available.
- Review each EKG with a standard and consistent approach.
- Consult and collaborate with cardiologists in interpreting complex EKGs, and in ordering further diagnostic studies or procedures based on EKG interpretation.
- Determine the need for specialist intervention based on the urgency and patient risk.

SYSTEM ORGANIZATION AND IMPROVEMENT

To improve quality and efficiency within their organizations, Hospitalists should:

- Lead, coordinate or participate in efforts to expedite acquisition and interpretation of EKGs for hospitalized patients.