

Clinical Evidence Series

Continuous ST-segment monitoring: nurses' attitudes, practices, and quality of patient care



What's different

Instead of displaying ischemia as individual ST-segment measurements across multiple ECG leads, ST Map transforms multi-lead ECG data into a visual anatomical-style map that highlights the location, magnitude, and progression of ischemic changes.



Interpretation

Implementation of ST Map visual display may reduce barriers that historically limited adoption of ST-segment monitoring in routine practice.



Key takeaways

ST Map increased utilization of ischemia monitoring and accelerated clinical assessment when ischemic changes occurred.



Background

- Acute coronary syndrome (ACS) patients remain at risk for recurrent or ongoing myocardial ischemia during hospitalization
- Continuous ST-segment monitoring can detect both symptomatic and silent ischemia that may be missed by intermittent 12-lead ECGs
- Despite guideline recommendations, continuous ischemia monitoring is often underutilized because it is perceived as difficult to use, associated with false alarms, and inadequately supported by training



Study design and methods

- Pre/post intervention study conducted in the cardiac ICU at Yale–New Haven Hospital
- Included 61 nurses and 202 patients with acute coronary syndrome
- Baseline assessments evaluated ischemia-monitoring practices, nurse attitudes, ECG lead placement, and quality-of-care metrics
- Nurses received education on ischemia monitoring, ECG electrode placement, and ST Map use prior to implementation
- Follow-up assessments were completed four months after activation of ST Map on all bedside monitors



Objectives

Evaluate whether implementation of ST Map improves nurses' use of and attitudes toward continuous ischemia monitoring and enhances quality of care for patients with acute coronary syndromes.



Results

Adoption of ischemia monitoring:

- Nurses reporting prior use of ischemia monitoring increased from 13% before ST Map to 90% after implementation ($p < 0.001$)
- After implementation, 81% of nurses reported that ischemia monitoring helped them identify when patients were experiencing ischemia

Clinical response:

Time to obtain a diagnostic 12-lead ECG following symptoms or ST-segment changes improved significantly

- Prior to ST Map, ECG acquisition required 5-15 minutes
- After ST Map, all ECGs were obtained within 5 minutes ($p < 0.001$)

Patient care impact:

Time to return patients to the catheterization laboratory did not differ before and after implementation.