Vital Sign Monitoring in the Emergency Department: A Quality Improvement Project

Bridget Lockhart, DNP (C), BSN, RN
Deborah Busch, DNP, CRNP, CPNP-PC, IBCLC, CNE
Patricia Gabriel, BSN, RN

Introduction
Upsurges in patient healthcare complexity have led to greater efforts to identify early clinical deterioration and adverse events.1 Vital signs are simple measurements of physiologic parameters that represent a valuable set of objective data used to establish general parameters of a patient’s health.2 Often these deteriorating patients have antecedent abnormalities in vital signs (abnormal blood pressure, abnormal heart rate, and/or respiratory distress) before clinical deterioration, which is often not fully captured by the health care team.3

Background
- A lack of consistent and timely vital sign collection or a failure to appreciate how observed changes in vital signs can impact a clinician’s ability to recognize and respond to the deteriorating patient, and can lead to sub-optimal patient outcomes.4
- Consistent collection, documentation, and trend analysis of vital signs as a means to improve the prediction of deterioration prior to a serious adverse event is key.5
- Fortunately, nurses are responsible for the recording and documenting of vital signs, and are therefore positioned to recognize and respond to the deteriorating patient.
- Yet, documentation of vital signs has been reported as a routine, task-oriented, often ritualistic process, and currently, there are no published standards of care or guidelines on the recommended frequency for obtaining vital signs in the Emergency Department (ED).6

Aims
- Aim 1. Implement a robust, expert clinician reviewed and approved evidence-based best practice vital sign e-learning educational module.
- Aim 2. Improvement in pre-to 30-day post evaluation of the Practices and Attitudes of Vital Signs Instrument for Emergency Nurses (PAVSI-EN) survey scores.
- Aim 3. Improvement in pre-to 60-day post intervention frequency, consistency, and completeness of vital sign documentation within the electronic medical record (EMR) for admitted patients.

Methods
- Design. Retrospective pre- and post-intervention.
- Setting. Single-site emergency department, located in the Mid-Atlantic region of the United States.
- Participants. A convenient sample of ED nurses 21 years of age or older, from all shifts and FTE’s.

Intervention
- A 20-minute expert-clinician approved web-based e-learning module comprised of:
  - Current, evidence-based best practice knowledge and critical-care analysis of vital signs
  - The most up-to-date, unit-specific policies regarding vital signs for ED patients
  - Review of policies regarding RRT-activation criteria and intra-unit transfer
  - Real-time case studies previously warranting RRT intervention.

Results of this project will be shared with the nursing director and medical director, and at the ED Council at the host institution. The evidenced-based module has been provided to the ED clinical staff.

8-Question PAVSI Chart Query
1. Were vital signs documented at time of triage?
2. Were all of the vital signs documented at time of triage?
3. Were vital signs documented within 30 minutes of triage?
4. Are vital signs documented every two hours?
5. Are blood pressure, pulse, respiratory rate, and pulse oximetry documented every two hours?
6. Are blood pressure, pulse and pulse oximetry documented every two hours?
7. Were vital signs obtained within one hour prior to transfer out of ED?
8. Are abnormal vital signs present?

Purpose
The purpose of this Quality Improvement (QI) project is to determine if an e-learning educational module that provides knowledge translation of unit policies and vital sign monitoring techniques can improve the frequency, consistency, and completeness of vital signs collected and documented by ED nursing staff.

Measure
- Aim 1: Intervention compliance assessed via e-learning report.
- Aim 2: Pre-and post-intervention PAVSI-EN survey.
- Aim 3: Pre-and post-intervention retrospective chart queries, utilizing eight points of vital sign data extraction from the electronic medical record.

References: See Notes