

# A SYSTEMATIC APPROACH TO EVALUATION OF PERFORMANCE DEFICIENCIES IN ED TRIAGE



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## Contribution to Emergency Nursing Practice

- Nurses are uniquely situated to critically evaluate quality and performance measures, identify opportunities for improvement, and recommend potential corrective interventions within the emergency department.
- Nurses can actively contribute to performance improvements that increase quality of care, improve patient outcomes and satisfaction, and reduce institutional liability and risk.
- Establishment of a systematic process to identify deficiencies, evaluate problems, and develop solutions is vital to continuous quality improvement.

## Abstract

**Problem:** Increasing ED crowding has resulted in greater demand and longer time-to-triage and time-to-provider wait times, making accurate triage more important than ever before to avoid poor patient outcomes and possible hospital liability. In one case, a 75-year-old patient presenting with chest pain became unconscious in the ED waiting area after initial registration but before triage. Although resuscitation was attempted, the patient did not survive. Continuous assessment and improvement are needed to streamline the triage process

and improve accuracy and efficiency. Because nurses play a vital role in patient triage, they are uniquely positioned to evaluate and enhance the process.

**Methods:** When staff at an 18-bed emergency department in a rural hospital suspected potential quality deficiencies related to extended wait times and patients leaving without being seen, a panel of nurses was formed to characterize the problem by conducting a chart review to develop potential solutions.

**Results:** The chart review identified a correlation between wait times and patients leaving without being seen during hours of peak demand. Accordingly, the panel collaborated and proposed several interventions to alleviate these problems.

**Implications for Practice:** Formation of a panel of skilled nurses to assess problems and recommend potential solutions may represent a useful approach for active nurse participation in quality improvement in the emergency department, thus having a meaningful impact on patient outcomes and hospital liability.

**Key words:** Emergency department; Triage; Wait time; Quality; Emergency Severity Index

Increased use of hospital emergency departments in the United States by patients seeking primary care has increased wait times and decreased quality of care.<sup>1</sup> As the first point of contact between patients and health care providers, efficient and accurate triage is an essential element in minimizing wait times and optimizing quality of care. Triage describes the process by which patients are evaluated and assigned to 1 of 5 triage categories according to the Emergency Severity Index

(ESI) based on factors such as vital signs, chief complaints, medical history, and resources needed to care for the patient in order to establish how long an individual patient can safely wait for a medical screening examination and treatment.<sup>2</sup>

Although the United States has not adopted guidelines for appropriate wait times based on triage category, the Canadian Triage Acuity Scale<sup>3</sup> and the Australasian Triage Scale<sup>4</sup> are widely accepted standards based on 5-level triage scales consistent with the ESI. According to these scales, patients assigned to triage level 1 (highest acuity)—such as those with cardiac arrest or major bleeding—should be seen immediately and monitored continuously to decrease morbidity and mortality. The Australasian scale states that level 2 patients—those with conditions that are serious but not immediately life threatening, such as severe pain, cardiac symptoms, or respiratory distress—should be seen within 10 minutes and monitored every 10 minutes thereafter, whereas the Canadian scale allows a maximum of 15 minutes for level 2 patients and monitoring every 15 minutes thereafter. Both

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scales include the same guidelines for levels 3 to 5, with level 3 patients (eg, those with abdominal pain or migraine) to be seen within 30 minutes and monitored at 30-minute intervals, level 4 patients (eg, those with urinary tract infection or minor laceration) to be seen within 60 minutes and monitored every hour thereafter, and level 5 patients (eg, those with a cold, rash, or car accident with no signs of injury) to be seen within 120 minutes and monitored every 120 minutes.

A report by Weber and colleagues<sup>5</sup> indicated that the triage process did not achieve identification of high-acuity patients (levels 1 and 2) within the recommended time frame. Based on the Canadian and Australasian Scale recommendations that provider evaluation occur immediately for level 1 patients and within 10 minutes for level 2 patients, they found that the median time from arrival to triage among 3932 level 1 and 2 patients was 12.3 minutes and that it exceeded 20 minutes for level 1 patients during the peak hours of 10 AM to 10 PM, which is unacceptable.

After a new triage process was initiated with the goal of improving triage-to-provider times, Weber et al<sup>5</sup> found that the experience and knowledge levels of the triage registered nurse (RN) were critical factors in appropriate triage. The nurse auditors noted that triage-to-provider times were dependent on the number of RNs assigned to each shift, the time of day, and the number of patients awaiting beds in the emergency department. It was noted that level 2 patients with chief complaints such as chest pain and shortness of breath often waited 30 minutes or longer (double the recommended guideline) for a bed assignment.

In a rural 18-bed emergency department with 3 triage rooms and an annual load of 35,000 patients, problems were observed during the waiting period before and after triage, including patients leaving the emergency department before being triaged or changes in patient status. ED nurses systematically evaluated potential practice deficiencies and developed performance improvement strategies by convening a group of nurses (including the nursing director) to evaluate problems before and after triage and to develop strategies to decrease wait times for all patients, especially those identified as levels 1 or 2.

## Methods

### STUDY DESIGN

The plan, do, study, act (PDSA) improvement model provided a framework to identify and characterize problems in the ED triage process and for development and evaluation of potential performance improvement interventions.

### APPROACH

#### *Retrospective Chart Review*

A group of 5 nurses conducted a random chart review to determine whether any patterns could be identified with

respect to time to triage or time to provider among level 1 and level 2 patients, who have the greatest risk for deterioration and the greatest risk of financial liability to the hospital. A total of 30 charts were reviewed, with equal numbers of level 1 and 2 patients from both peak and off-peak times. A simple checklist was used to record the relevant data: check-in time, time to triage, time to provider, and triage level. Incidence of departure (before triage or before being seen by a provider) and mean and median time to triage and time to provider were compared with time of day and assigned triage level to determine whether extended wait times or patient departures were associated with triage level or time of day.

### *Data Analysis*

The time to triage, time to provider, and incidence of patient departure (before triage or before being seen by a provider) were compared with time of day and assigned triage level to determine whether extended wait times or patient departures were associated with triage level or time of day. Mean and median time to triage and time to provider were calculated for triage level 1 and 2 patients.

## Results

The chart review indicated that both level 1 and 2 patients were seen by a provider within the recommended periods during nonpeak times; however, the standards were not observed during peak times (10 AM to 10 PM). Although the time to provider for level 1 patients was up to 10 minutes during peak hours, an even greater delay was observed with patients triaged as level 2, including those with complaints of chest pain, shortness of breath, and other potentially life-threatening complaints. During peak times, the median time to provider for level 2 patients was 22 minutes, with a high of 60 minutes and a low of 12 minutes. Based on the results of the review, it was extrapolated that 5 to 10 patients per 24-hour day left the emergency department before seeing a provider. Patients triaged as level 2 with a presenting complaint of chest pain sometimes received an electrocardiogram review by the provider that was not annotated in the patient's electrical medical record. This lack of timely charting may have contributed to a skewing of the time to provider for some level 2 patients.

## Discussion

According to Vermeulen et al,<sup>6</sup> wait times directly affect patient outcomes in the hospital emergency department. Patients presenting to the emergency department often have a skewed view of their complaint and how long they should wait and judge the urgency of their need against that of other patients. In general, patients in more immediate peril are seen

more quickly than those who are at less risk. However, human error, overcrowded emergency departments, and a continuous push for increased throughput caused by emergency departments serving as primary care for patients who lack health insurance can result in poor patient outcomes and increased hospital liability. The problems initially observed by ED staff were<sup>1</sup>: patients leaving before triage and<sup>2</sup> high-acuity patients (level 1 and 2) waiting too long before seeing a provider. Because these problems could result in increased risk to patient health and safety, as well as increased liability, a group of nurses was assigned to conduct a systematic chart review to assess the problem and develop potential quality improvement interventions.

### Defining the Problem

Although wait times during nonpeak hours were acceptable based on established standards, time to provider frequently increased to unacceptable durations in periods of peak demand. Wait times that exceeded recommended standards during peak hours represented a potential for increased risk of undesirable patient outcomes.<sup>6</sup> The panel found that the ED staff was not aware of potentially high-acuity patients presenting to the registration clerk until they were triaged, which could contribute to wait times exceeding the recommended durations for patients with more urgent needs.

The observed results were consistent with those reported by Weber et al,<sup>5</sup> who found that high-acuity patients frequently did not receive care within the recommended time frames based on the Canadian and Australasian Scales.<sup>3-5</sup> They also reported that the experience and knowledge levels of the triage RN were critical factors in accurate triage and noted that triage-to-provider times were dependent on the number of RNs assigned to each shift, time of day, and number of patients awaiting beds in the emergency department.

### Developing Potential Solutions

The panel recommended monitoring of arriving patients by a nurse to ensure prompt triage of patients with chief complaints potentially consistent with ESI levels 1 or 2 and subsequent care within appropriate periods, as well as reassessment of all patients at least every 30 minutes until they are assigned to a bed. The panel further advised that the triage nurse clear level 1 and 2 patients with a provider while awaiting an open bed, therefore satisfying the guidelines for maximum wait time. This approach is supported by the results of Milsten et al,<sup>7</sup> who reported

decreases in both time to provider and patients leaving without being seen when a physician assistant or physician was assigned to triage during peak times. Another recommendation was to have additional staff assigned to triage during peak times or whenever wait times exceed 30 minutes. Love et al<sup>8</sup> found that assigning a nurse practitioner to the triage department decreased mean time to provider by 60% and reduced patients leaving without being seen from 3.6% to 0.9%. In addition, the panel recommended another review 6 months after implementation of the initial recommendations to determine whether wait times had improved.

### Implications for Emergency Nursing

The adoption of a systematic process for continuous improvement through identification of problems and creation of solutions ensures the best possible patient outcomes, which could lead to greater patient and staff satisfaction and reduced hospital liability. Arbune et al<sup>9</sup> concluded that incremental process changes can lead to substantial improvement in ED quality measures. Despite these benefits, implementation of these changes or nurse overtime for chart audits may not seem cost-effective, but in the long run, improved patient safety and decreased liability far outweighs these minimal costs.

### Conclusions

The Quality and Safety Education for Nurses initiative has identified quality improvement as a core competency for RNs and advanced practice nurses.<sup>10</sup> Because ED nurses play a vital role in the triage and subsequent treatment of presenting patients, they are uniquely situated to critically evaluate quality and performance measures, identify opportunities for improvement, and recommend potential corrective interventions. The experience of this small, rural emergency department demonstrates a potential process by which ED nurses can actively contribute to improvements that enhance quality of care, patient outcomes, and patient satisfaction, as well as reduce institutional liability and risk.

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