

# Addressing Emergency Department Issues Using Advanced Practice in Saudi Arabia

Siobhan Rothwell, DNP, NP Emergency, Kimberly McIltrout, DNP, PNP-C, and Zeina Khouri-Stevens, PhD, RN

## ABSTRACT

Emergency departments (EDs) struggle to manage safe, effective care in the face of increasing patient volume. The role of the nurse practitioner has been shown to improve key factors such as waiting times and the patients' experience in the ED. This quality improvement project evaluates the effectiveness of a nurse practitioner based in the ED. One nurse practitioner managed patients presenting with minor trauma over 3 months. A pre-post intervention approach was implemented and evaluated. Over 3 months, waiting times and the number of patients who left without being seen were reduced.

**Keywords:** emergency department, nurse practitioner, minor trauma, patient satisfaction, waiting times, left without being seen

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Emergency departments (EDs) face challenges that threaten the safety and quality of care delivery and impact the efficiency of departmental processes.<sup>1,2</sup> As health care organizations struggle to keep pace with demand, insufficient inpatient beds, and increases in life expectancy with chronic illnesses, EDs are forced to react to the inevitable effect on the department. Problems include increased waiting times, patients leaving the ED without being seen (LWBS), and poor patient satisfaction.<sup>3,4</sup> Overcrowding in the ED leads to lower levels of quality care and impaired decision-making.<sup>1</sup> This results in poor patient outcomes and increased morbidity and mortality.<sup>5</sup>

This quality improvement project introduced and evaluated the role of an ED nurse practitioner (NP) in Saudi Arabia. NPs have been shown to have a significant impact on departmental performance addressing clinical issues and the patients' experience; introducing the role to Saudi Arabia was considered in light of this.

## LITERATURE REVIEW

EDs in Saudi Arabia face the aforementioned problems, and the literature suggests that

nonemergent patients can contribute to significant delays in EDs.<sup>6,7</sup> NPs have had a positive impact on managing low-acuity patients while providing safe and effective care, and their introduction has contributed to the resolution of ongoing ED issues.<sup>8</sup> Patient flow is important in trying to improve efficiency within a department. This has been addressed by using a dedicated space to manage this group of patients by minimizing delays, reducing overcrowding the main ED and facilitating appropriate care delivery.<sup>4,8</sup>

## METHODS

### Study Design and Participants

A quality improvement project was undertaken to address the problems associated with ED overcrowding. The setting was a 35-bed ED in Saudi Arabia with an annual census of 45,000 patients. Although the Ministry of Health (MOH) of Saudi Arabia has not yet officially established the role of NP, the ED, in collaboration with the MOH, undertook a pilot project to introduce the NP role and evaluate outcomes. The project was conducted using pre-post evaluation following the introduction of the minor trauma NP to the ED. The NP in the role

was a post-master's doctor of nursing practice candidate and a licensed NP in her own country. She had been working as an ED clinical nurse specialist before commencing the NP role. ED data reports and elements of the Press–Ganey survey gave baseline pre-implementation data from which to measure post-implementation outcomes.

Participants included adults and children who presented to the ED with minor trauma during the project period. Minor trauma was defined as an injury that did not threaten life, limb, or vision. Exclusion criteria included all patients under age 1 month and children under age 5 years with a head injury. The ED Fast Track unit, which had been underutilized up to this point, was identified as an appropriate treatment area.

### Data Collection, Analysis and Ethical Consideration

The triage nurse streamed patients who met the inclusion criteria to the Fast Track unit. Demographic data were collected on all patients in this group, and existing hospital reports were used for information such as timestamps and patient satisfaction results (Table 1). An independent sample *t* test was used to establish differences between the pre- and post-intervention outcomes. NP charts were audited by a physician mentor to ensure adherence to clinical protocols.

Approval was granted by the Institutional Review Board (IRB) to carry out the quality improvement project in the ED. The intervention also required the credentialing and privileging of an NP before the commencement of practice to ensure fitness to practice. Agreement was reached with the Chief of Emergency Medicine on the NP scope of practice and evidence based clinical practice protocols were developed. To protect individuals' identities, the data was de-identified and stored on a computer which was password protected in an electronic database.

## RESULTS

### Baseline Characteristics

Participants ranged in age from 1 year to 82 years of age, with a mean age of 22.5 years. Males made up 55% of the sample population. The majority of

**Table 1. Project Data Collected and Data Sources**

Data Point	Source
Triage time to bed time (in minutes), all ED patients	ED report
Triage time to clinician (in minutes), all ED patients	ED report
Triage time to clinician (in minutes)	ED report
Clinician = MD pre-implementation	
Clinician = NP post-implementation	
Minor trauma patients only	
Number of patients who leave without being seen, all ED patients	ED report
Patient satisfaction with waiting time, all ED patients	Press-Ganey survey
Patient satisfaction on the provision of information regarding their treatment, all ED patients	Press-Ganey survey
Audit of nurse practitioner charts (25/month)	Physician mentor

ED = emergency department.

patients were of Saudi Arabian nationality (87.4%), followed by Americans (6.3%) and Indians (2.7%).

### Clinical Measurement Outcomes

There was significant reduction in waiting times for minor trauma patients with the introduction of the NP. Although there were reductions in waiting times for all ED patients, they were not statistically significant (Table 2). There was a 3.1% reduction in the number of patients who LWBS; this is also in light of a 3% increase in the patient census during the intervention period.

There was a statistically significant reduction in patient satisfaction in their perception of how the clinician kept them informed of their treatment ( $P = .073$ ). Patients' perception of their waiting time was also reduced but was not statistically significant ( $P = .41$ ) (Table 2).

Physician mentor audit of NP charts ( $n = 75$ ) showed 98% compliance (legibility, patient history,

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