



# Seniority of Emergency Physician, Patient Disposition and Outcome Following Disposition



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## ABSTRACT

**Objectives:** The relationship between the seniority of emergency physicians (EPs) and disposition decision-making is not well defined. As most responsibility by EPs involves developing an appropriate disposition plan, this study aimed to examine the influence of EP seniority on decisions regarding patient dispositions in the emergency department (ED).

**Materials and Methods:** This retrospective, 1-year, cohort study was conducted in 3 EDs including all day-shift nontraumatic adult patients. The outcome involves patient dispositions at the end of the shift, patient final dispositions and patient 72-hour ED return. The EPs were categorized into the following 3 groups according to seniority: junior group ( $\leq 5$  years of work experience), intermediate group (6-10 years) and senior group ( $>10$  years).

**Results:** The dispositions of 68,333 ED patients as determined by the 59 full-time EPs were studied. Compared to junior and intermediate EPs, senior EPs kept more patients in the ED (2.7% more than junior EP, 2.3% more than intermediate EP); they had the lowest patient mortality rate especially in first triage patients (3.4% fewer than junior EP, 1.3% fewer than intermediate EP); they took more time for patient discharge (0.2 more hours than junior EP, 0.1 more hours than intermediate EP); they had fewer patients return to the ED within 72 hours after discharge (0.5% fewer than junior EP, 0.3% fewer than intermediate EP).

**Conclusions:** Senior EPs had the best quality of care (lowest mortality, fewest 72-hour returns). This best quality of care is accompanied with a slightly longer length of stay.

**Key Indexing Terms:** Emergency; Physician; Seniority; Disposition. [*Am J Med Sci* 2016;351(6):582-588.]

## INTRODUCTION

An accepted axiom, and one that seems quite reasonable, is that the longer one holds a job, the more proficient one becomes performing that job. However, research suggests that job experience has a nonlinear relationship with performance.<sup>1-3</sup> Older workers may exhibit lower productivity,<sup>4-7</sup> be less technologically savvy and be less willing to adapt quickly in volatile environments.<sup>8,9</sup>

Physician experience has been shown to correlate with improved clinical outcomes in emergency settings.<sup>10,11</sup> The literature has shown that medical experience was influenced by seniority.<sup>12,13</sup> Many studies have focused on the positive effect of seniority on the treatment of emergency department (ED) patients; an improved outcome was associated with experience and seniority in major trauma patients.<sup>10</sup> Salazar et al<sup>14</sup> found that replacing residents with physicians resulted in fewer laboratory tests and radiographs being ordered, and shorter stay lengths in the ED. White et al<sup>15</sup> state that senior doctors' input in patient care in the ED adds accuracy in making disposition decisions, in assisting with patient safety and in improving departmental flow. Most previous studies focused on the

difference in clinical performance between residents and attending physicians. People may be curious about whether seniority still affects clinical performance in a positive way after being an attending physician for a decade.

One of the major responsibilities of emergency physicians (EPs) is to develop an appropriate disposition plan for each patient. Errors in admission or discharge decisions may place patients at substantial risk of adverse events. Although it is inappropriate to discharge patients who need inpatient care, as this can lead to medical deterioration, unnecessary patient admissions result in exhaustion of hospital resources and expose patients to iatrogenic risk.<sup>16</sup> In a previous study,<sup>17</sup> a relationship between decisions regarding disposition and seniority was found; senior EPs had lower discharge rates compared with their junior colleagues but overall data are limited due to this single-center study and the small number of EPs used. Therefore, the objective of this study was to conduct a multiple-care settings study not only to analyze the discrepancy of the patient discharge rate between EPs but also to analyze other issues related to disposition decision-making, such as admitting patients to observation rooms, ordinary wards

or intensive care units. This study also analyzed the observed patients' final dispositions and the patients who revisited the ED 72 hours after discharge. It was believed that this study would help people to understand the differences in disposition between each EP more clearly. Understanding this issue may help EPs to decrease the variability and gap between each EP, which could eventually improve care quality in the ED.

## MATERIALS AND METHODS

### Study Design

This was a retrospective, 1-year, cohort study approved by the Chang Gung Medical Foundation Institutional Review Board. The patient records and information were anonymized and de-identified before analysis.

### Study Setting and Population

This study was conducted in 3 EDs from July 1, 2011 to June 30, 2012. The 3 EDs were all branches of the same healthcare system and were geographically well dispersed nationwide. In all, 1 ED was a tertiary referral medical center with over 3,500 beds and 2 EDs were secondary regional hospitals with over 1,000 and 250 beds each. Other than the smallest ED, the other 2 EDs were the largest in their counties.

To study the disposition decisions made by EPs, all nontrauma patients older than 18 years who presented to the EDs during the day shift within the study period were included in this study. Nontrauma triage was defined according to The Five Level Taiwan Triage and Acuity Scale that was formulated by the Department of Health. This triage system initially classifies chief complaints into 2 categories (nontrauma and trauma). The reason why day-visit patients were chosen as the sample was to avoid the influence of hospital facility and other potential confounders. Some examinations and hospital admissions were not available during the evening and night shift, and it might interfere with patient disposition. The day shift comprised all 8 hours, and this was divided based on the EPs' duty hours that were 7:00-15:00. Although residents would assist in the initial evaluation and resuscitation of patients, decisions regarding disposition were all made independently by the duty EP. There were 59 full-time EPs involved in this study, and they rotated throughout the tertiary referral medical center and 2 secondary regional hospitals. In the tertiary referral medical center where 3 attending physicians worked at the same time, patients were assigned to different attending physicians according to triage. The Five Level Taiwan Triage and Acuity Scale was used for the evaluation of disease acuity. In all, 1 physician was in charge of first and second level triage patients, 1 of third level triage patients and 1 of fourth and fifth level triage patients. In a secondary regional hospital where 2 attending physicians worked together, patients were assigned alternatively to each

attending physician in charge. In the other secondary regional hospital, there was only 1 attending physician in charge.

### Study Protocol

Demographic factors (age, sex, triage level and ED length of stay) of the patients, as well as ED disposition were drawn from the ED administrative database and studied in reference to the seniority of the EPs. The EPs were categorized into the following 3 groups according to seniority: junior group (26 junior physicians with  $\leq 5$  years of work experience), intermediate group (12 physicians with 6-10 years of work experience) and senior group (21 senior physicians with  $>10$  years of work experience). All EPs involved in this study were trained in the same medical setting where this study was conducted. The EPs typically worked continuously since completing their training, thus minimizing differences between calendar and cohort effects. The total number of patients within the different age groups ( $\geq 65$  or  $<65$  years) and those of each triage level according to individual EPs were recorded. This study compared the differences of the patient dispositions according to age ( $\geq 65$  or  $<65$  years) and triage level between the groups to determine if seniority influenced recorded patient disposition.

## MEASURES

The number of patients per hour seen by the providers was counted. The dispositions recorded at the end of the day shift were documented as the primary outcomes, including observation at ED, discharge, admission to general ward or intensive care unit and expired. Patients who were kept under observation in the ED were all handed over to the subsequent attending. Patients transferred to other hospitals for admission were categorized as admission; those discharged against medical advice or outpatient transfers were categorized as discharged.

The final patient disposition and 72-hour ED return rate were collected as secondary outcomes to evaluate the accuracy of the dispositions. The 72-hour ED return is defined as a patient returning to the ED within 72 hours after discharge and was thought to be an indicator of possible adverse events. The 72-hour revisit rate was defined as the number of revisited patients within 72 hours divided by the total number of ED patients.

### Data Analysis

The number of patients per hour seen by the providers and patient age were reported as means with standard deviations and analyzed using analysis of variance. The ED length of stay was reported as medians with interquartile ranges, and nonparametric Kruskal-Wallis tests were employed for analysis. All other variables were reported as numbers with percentages

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