

Administration of Emergency Medicine

UNSCHEDULED RETURN VISITS WITH AND WITHOUT ADMISSION POST EMERGENCY DEPARTMENT DISCHARGE

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Abstract—Background: Monitoring unscheduled return visits to the Emergency Department (ED) is useful to identify medical errors. **Objective:** To investigate the differences between unscheduled return visit admissions (URVA) and unscheduled return visit no admissions (URVNA) after ED discharge. **Methods:** From January 1, 2008 to March 31, 2008, URVA and URVNA patients who returned within 3 days after ED discharge were enrolled in the study. We compared the clinical characteristics, underlying diseases, ED crowding indicators, staff experience at the patient's first visit, and several other risk factors. We used multivariate logistic regression to evaluate differences between the two groups and to identify predictors of admission from unscheduled return visits. **Results:** The unscheduled return visit rate was 3.1%. Of the 413 patients included, 147 patients (36%) were admitted, and had a mortality rate of 4.1%. The most common reason for the return visit was an illness-based factor (47.9%). Compared to URVNA patients, unscheduled return visit admissions had higher prevalence rates for old age, non-ambulatory status, high-grade triage, and underlying diseases (e.g., malignancy, diabetes mellitus, hypertension, coronary artery disease, heart failure, and chronic obstructive pulmonary disease). The independent predictors for URVA were: age ≥ 65 years (adjusted odds ratio [OR] 2.2, 95% confidence interval [CI] 1.4–3.5); high-grade triage (adjusted OR 2.1, 95% CI 1.3–3.2); and doctor-based factors (adjusted OR 3.5, 95% CI 2.0–6.1).

More advanced staff experience ($p = 0.490$) and ED crowding were not significant predictors ($p = 0.498$ for whole-day number of patients, $p = 0.095$ for whole-shift number of patients). **Conclusion:** Old age, high-grade triage, and doctor-based factors were found to be significant predictors for URVA, whereas advanced staff experience and ED crowding were not. © 2012 Elsevier Inc.

Keywords—unscheduled return visit; admission; Emergency Department; crowding; medical errors

INTRODUCTION

Medical errors not only threaten patient safety in general but also contribute to rising health care costs. Medical errors have an impact on the daily activities of health care providers, the reputation of doctors, nurses, and health care organizations, and public trust and confidence in the medical profession itself. Although the likelihood and rate at which such errors occur can be significantly influenced by several types of factors (e.g., personal, situational), complex high-pressure environments such as hospital Emergency Departments (EDs) seem to be particularly vulnerable (1).

In many cases, monitoring unscheduled return visits to hospital EDs can be useful to identify both the source and the impact of medical errors (2–7). A review of the literature suggests that the rate of return visits to EDs ranges from 0.39% to 5.8% in adults (2–10). At first, we hypothesized that return visits were the direct consequence of poor initial medical care. However, both Pierce et al. and Kelly et al. reported that the main reason for return visits was not doctor-based but rather, patient-based factors (53%) in the former study and illness-based factors (61%) in the latter (4,6). Therefore, this study was designed to focus on unscheduled return visits with admission (URVA) and compare them to unscheduled return visits with no admission (URVNA). This admission factor, it was thought, might indicate the existence of serious medical problems that a primary focus on simple return visits would not necessarily reveal. To analyze URVA rather than URVNA may be more crucial for reducing the rate of medical error, however, there are very few articles in the established literature that address this issue (9,11).

This study focuses on the differences between URVA and URVNA when the return visit was within 3 days after ED discharge. We were particularly interested in answering the following questions. What is the percentage of URVA patients who are discharged from the ED within 3 days due to doctor-based factors? Does the return visit with admission occur due to ED crowding, limited staff experience, or some other factor? What are the predictors for admission based on a group of unscheduled return visit patients who were discharged from the ED within 3 days?

MATERIALS AND METHODS

Study Population

We included all patients ≥ 15 years of age who had a return visit to the ED within 3 days of discharge at an 800-bed teaching hospital in southern Taiwan, during the study period from January 1, 2008 to March 31, 2008. The ED has an annual census of approximately 70,000 people, an average admission rate of 20.3%, and an average return visit rate of $< 3\%$. Patients were enrolled in the study through a computer registration system that recorded two or more occurrences of ED registration for a particular patient within 3 days of discharge during the study period. In the data analysis, we excluded patients with the following: 1) a scheduled return visit, for example, when a uremia patient visited the ED due to failure of an arterial-venous shunt, but was unable to receive percutaneous balloon angioplasty on the first visit; 2) an unscheduled return visit due to medical problems unrelated to the initial visit, for example, the initial visit to the ED was due to chest pain, but the return visit was due to

head injury from a traffic accident. The Institutional Review Board of the Chi-Mei Medical Center, Liouying, approved this study.

Data Collection and Processing

Data were collected by thoroughly reviewing and analyzing the medical records of each patient. The medical data included demographic data (e.g., age, gender), underlying diseases, ED crowding (patient first-visit arrival period, number of patients per day, and number of patients per shift), initial-visit staff's experience level, initial-visit discharge vital signs, and return visit justification. The return visit justifications were divided into three groups: Doctor-based (diagnostic errors and treatment errors); Patient-based (non-compliance, non-urgent medical needs, habitual use of the ED, and discharge against medical advice); and Illness-based (disease progression, chronic disease status, medical complications, and disease recurrence). The division of justifications into three groups was a modification of a model taken from the Pierce study (4). Two Emergency staff members with over 5 years of clinical experience determined the justification for each patient's return visit. If there was any disagreement between them, the ED Director joined the discussion and made the final determination. The data were collected on standardized data collection forms for this study. All of the staff members were briefed on the Pierce study before grading the patients.

The return visit justifications were classified in the following manner. If the data indicated only a doctor-based justification, then it was classified as such. If the data indicated a doctor-based and some other justification, it was still classified as doctor-based. In other words, when a doctor-based justification was indicated, it took priority. If the data indicated a patient-based and an illness-based justification, then it was classified as patient-based.

Some examples are given to clarify the meaning of this classification system.

Doctor-based return visit (DBRV). The source or cause of the return visit was related to an action or inaction by the physician: *Diagnostic error*, for example, a patient with appendicitis was diagnosed with acute gastroenteritis at the first ED visit; *Treatment error*, for example, a patient presented with a contaminated wound at the first visit but did not receive appropriate debriding and antibiotics, and the patient's return visit is due to wound infection.

Patient-based return visit (PBRV). The source or cause of the return visit was related to an action or inaction by the patient. *Noncompliance*, for example, a patient initially presented with chronic alcoholic pancreatitis, and the return visit is due to intractable abdominal pain caused by

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