

Original Contributions



TIMELY PAIN MANAGEMENT IN THE EMERGENCY DEPARTMENT

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Abstract—Background: Delivering timely pain relief remains a challenge for most emergency departments. **Objective:** To evaluate the effectiveness of a policy aimed at delivering analgesics within 30 min to patients presenting to an emergency department with severe pain. **Methods:** Subjects were aged ≥ 19 years, had a principal diagnosis of renal colic, hip fracture, or sickle cell disease, reported a pain score ≥ 8 on a scale of 0 to 10 at triage, and continued to report a score in this range until receiving analgesia. The study compared proportions of patients receiving analgesics within the 30-min target, median time to analgesic administration, and median time to relief of severe pain (decline in pain level to score < 8) during 6 months before vs. 6 months after implementation of the new pain management policy. **Results:** Paradoxically, the median total waiting time to analgesic administration increased from 64 min ($n = 75$) to 80 min ($n = 70$) after policy implementation ($p = 0.01$), and the proportion of patients receiving analgesics within 30 min declined from 17% (13/75) to 7% (5/70) ($p = 0.08$). Median time to relief of severe pain did not differ significantly between periods (130.5 vs. 153 min; $p = 0.31$). **Conclusions:** After implementation of the new pain management policy, the proportion of patients with severe pain receiving analgesics within 30 min actually declined. Although a 30-min target may be unrealistic, it seems reasonable to conclude that something is wrong when pa-

tients with notoriously painful conditions must typically wait 1–2 h to obtain relief. Given the millions of individuals who receive care in emergency departments nationwide each year, the suffering caused by delays occurs on a large scale, so creative approaches are clearly needed to overcome the obstacles. © 2015 Elsevier Inc.

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INTRODUCTION

Pain is a common complaint among hospital inpatients, and the most common reason for emergency department visits (1). Prolonged pain affects patients psychologically and physiologically, complicates primary conditions, increases length of recovery time, and adds to health care costs (2). Despite extensive research and updated guidelines on pain management, satisfying patient expectations for adequate and timely relief remains a challenge in most emergency departments (1,3). Recommendations for better pain management include improved acknowledgment, assessment, and documentation of pain, reduced clinician workload, monitored outcome measures, formalized education and training, and implementation of pain management protocols (1,4–7).

In March 2010, the emergency department of Winthrop University Hospital, an academic teaching hospital located near New York City, implemented a new pain

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This study was approved by Winthrop University Hospital's Institutional Review Board.

management protocol. The protocol, known as the Pain Management 30 Policy (the “Policy”), stipulates that patients with severe pain should receive analgesics within 30 min of triage. The 30-min target was intended to accommodate patients’ expectations for immediate pain relief, while recognizing that it takes at least 30 min to complete triage, find a bed for the patient, conduct brief nursing and physician assessments, and order and administer an analgesic. In other words, 30 min is required to provide “immediate” pain relief. Staff members were informed about the Policy during regular meetings and provided with written copies.

The present study was designed to evaluate the effectiveness of this Policy in improving the timeliness of pain management in the emergency department.

MATERIALS AND METHODS

Setting and Subjects

Winthrop University Hospital is a 595-bed academic teaching hospital located in Long Island, New York. The Department of Emergency Medicine, which serves patients from Nassau, Suffolk, and Queens Counties, has approximately 72,000 visits annually. The department is staffed by 40 full-time faculty physicians, 10 physician assistants and nurse practitioners, and 145 nurses.

To evaluate the effectiveness of the Policy, we focused on patients with renal colic, hip fracture, or sickle cell disease. We chose these conditions because they often cause severe pain and because it is usually possible to make a reasonably confident tentative diagnosis based on the history and physical examination. Patients aged ≥ 19 years with these conditions were identified retrospectively from the hospital’s administrative data system using ICD-9 discharge diagnosis codes. Because these codes were assigned by coders after a patient’s discharge from the emergency department based on the final diagnosis recorded in the medical record, medical and nursing staff would not necessarily have known the final diagnosis before administering an analgesic.

Study Design

This retrospective before-and-after study compared outcomes before and after implementation of the Pain Management 30 Policy. These outcomes included the proportion of patients receiving analgesics within the 30-min target and the median time to analgesic administration and median time to relief of severe pain.

Because the Policy was implemented on March 1, 2010, the 6-month period August 1, 2009 through January

31, 2010 served as the historical control (“before”) period and the same 6 months 1 year later (August 1, 2010 through January 31, 2011) defined the intervention (“after”) period. Using these before and after periods offered two advantages. First, by excluding the 5 months after introduction of the Policy (March through July 2010), this design eliminated the problem of a Hawthorne effect—the equivalent of a placebo effect associated with behavioral interventions that may confound the interpretation of study findings (8). The Hawthorne effect typically lasts no more than 8 weeks after introduction of a change. Second, the design eliminated the potential problem of seasonal variation by using the same months for the before and after groups.

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Usual Care

Upon arrival at the emergency department, a patient routinely passes through the following series of steps (waiting for each step may delay pain relief): triage \rightarrow bed assignment \rightarrow physician evaluation \rightarrow analgesic administration.

Before March 1, 2010, providers typically ordered analgesics only after completing a comprehensive patient evaluation and receiving test results confirming the diagnosis. Patients with suspected renal colic initially received intravenous fluids and antiemetics pending results of blood chemistries, complete blood count, and urinalysis. The definitive diagnosis was made by abdominal and pelvic computed tomography scan without contrast. Patients with suspected hip fractures—who are routinely immobilized by emergency medical technicians before arrival—underwent plain x-ray studies of the hip and pelvis. Orthopedic consultation was obtained once the diagnosis was confirmed. Patients with apparent sickle cell crisis typically received intravenous fluids and nasal oxygen pending results of studies to determine if an infectious etiology had precipitated the crisis. The diagnosis relied on the patient’s history in the absence of another explanation for the pain.

Patients rated their pain on a scale ranging from 0 (no pain) to 10 (worst pain) at triage and every 30 min thereafter if they reported any pain initially. Otherwise, they rated their pain every 2 h, when vital signs were obtained. The date, time, and pain score were entered into the patient’s medical record. Besides recording the pain score, the nurse or provider also observed the patient’s behavior and affect. The recorded pain scores were used to identify study subjects retrospectively (patients reporting a pain score ≥ 8 at triage), as well as to determine the length of time patients waited until their pain had diminished.

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