

Trainees as Agents of Change in the Opioid Epidemic: Optimizing the Opioid Prescription Practices of Surgical Residents

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OBJECTIVE: Opioid abuse has become an epidemic in the United States, causing nearly 50,000 deaths a year. Postoperative pain is an unavoidable consequence of most surgery, and surgeons must balance the need for sufficient analgesia with the risks of overprescribing. Prescribing narcotics is often the responsibility of surgical residents, yet little is known about their opioid-prescribing habits, influences, and training experience.

DESIGN: Anonymous online survey that assessed the amounts of postoperative opioid prescribed by residents, including type of analgesia, dosage, and number of pills, for a series of common general surgery procedures. Additional questions investigated influences on opioid prescription, use of nonnarcotic analgesia, degree of engagement in patient education on opioids, and degree of training received on analgesia and opioid prescription.

SETTING: Accreditation Council for Graduate Medical Education accredited general surgery program at a university-based tertiary hospital.

PARTICIPANTS: Categorical and preliminary general surgery residents of all postgraduate years.

RESULTS: The percentage of residents prescribing opioids postprocedure ranged from 75.5% for incision and drainage to 100% for open hernia repair. Residents report prescribing 166.3 morphine milligram equivalents of opioid for a laparoscopic cholecystectomy, yet believe patients will only need an average of 113.9 morphine milligram equivalents. The most commonly reported influences on opioid-prescribing habits include attending preference (95.2%), concern for patient satisfaction (59.5%), and fear of

potential opioid abuse (59.5%). Only 35.8% of residents routinely perform a narcotic risk assessment before prescribing and 6.2% instruct patients how to properly dispose of excess opioids. More than 90% of residents have not had formal training in best practices of pain management or opioid prescription.

CONCLUSION AND RELEVANCE: Surgical trainees are relying almost exclusively on opioids for postoperative analgesia, often in excessive amounts. Residents are heavily influenced by their superiors, but are not receiving formal opioid-prescribing education, pointing to a great need for increased resident education on postoperative pain and opioid management to help change prescribing habits. (J Surg Ed ■■■■-■■■. © 2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: opioid prescribing, resident education, pain management

COMPETENCIES: Patient Care and Medical Knowledge

INTRODUCTION

Opioid abuse has become an epidemic in the United States, creating devastating medical, social, and financial consequences.^{1,2} As of 2014, the number of opioid-related deaths in the United States had risen to nearly 50,000 a year, a number now greater than the annual deaths from motor vehicle accidents.³ Physicians have played a role in this epidemic by continuing to rely on and overprescribing narcotic analgesia. It is now estimated that a quarter billion opioid prescriptions are written in the United States each year,⁴ which has created an excess supply of narcotics that has fueled the rise in overdoses, long-term addiction, and diversion for illicit use.^{5,6}

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Prescribing postoperative analgesia presents a challenge for surgeons. Postoperative pain is an unavoidable consequence of most surgery, and surgeons must balance the need for sufficient analgesia with the risks of overprescribing. In recent years, an emphasis on patient satisfaction has focused attention on improving pain control, causing many physicians to err toward overprescribing.⁷ With this focus on patient comfort, opioids have become the first-line analgesic postoperatively, and now more than a third of all prescriptions written by surgeons are for narcotics.⁸

The balance between patient need and proper dosing is particularly difficult for surgical trainees. Postoperative discharge prescriptions and instructions are commonly the responsibility of residents, and oftentimes left to junior residents who have the least amount of training and experience. Furthermore, although there are national guidelines for management of immediate perioperative⁹ and chronic pain,⁴ there are no widely established national surgical guidelines for management of postoperative pain for residents to reference. It therefore becomes the task of the resident to determine the dose and duration of analgesia with little guidance beyond their own limited anecdotal experience.

Although residents are given the responsibility of prescribing postoperative analgesia, their practice patterns and the influences on their prescribing habits remain ill-defined. To study this question, a questionnaire was administered to all general surgery residents at a large university-based hospital, asking about postoperative prescribing habits, prescribing influences, knowledge of narcotics, and education received on analgesia prescription.

METHODS

An anonymous, deidentified survey was sent to all 101 residents at an Accreditation Council for Graduate Medical Education accredited General Surgery training program. Residents of postgraduate years (PGY) 1 through 5 were included. All designated and nondesignated preliminary residents and categorical residents were surveyed. Surveys were sent via e-mail in the fall of 2016 and administered using the online Qualtrics survey tool. Participation was optional.

The survey presented to residents a number of clinical scenarios and asked them to describe their typical analgesic regimen for an opioid-naive patient, including type of analgesia, dosage, and number of pills prescribed. The chosen procedures included laparoscopic cholecystectomy, laparoscopic inguinal hernia repair, open inguinal hernia repair, laparoscopic hemicolectomy, and bedside buttock abscess incision and drainage (I&D). Cholecystectomy and hernia repair were presented as outpatient surgeries, whereas hemicolectomy was presented as an uncomplicated case being discharged on postoperative day 4. The I&D was

presented as a procedure performed in the emergency department with the patient to be discharged home. The survey questions are presented in total in [Supplementary Table A1](#).

The amounts of opioid-reported prescription were converted into morphine milligram equivalents (MME) based on the type of opioid, the dose, and the number of pills prescribed, to compare narcotic dosing across different medications.⁴ To further investigate the residents who prescribed the most narcotic, residents were stratified into terciles based on the average amount of narcotic prescribed over the 5 queried procedures.

Residents were further asked to choose the most common influences on their narcotic-prescribing habits. Additional questions were administered regarding resident use of non-narcotic analgesia, interaction with pain services, degree of engagement in patient analgesia education, and level of resident education on analgesia and opioid prescription. Questions were structured as a 5-point Likert response scale.

Descriptive statistics were performed for survey questions. Student's *t*-tests were used to evaluate differences between continuous variables and chi-squared analyses for categorical variables. Differences between means were calculated using analysis of variance. All analysis was conducted using SAS 9.4 (SAS Institute, Cary, NC).

RESULTS

Demographics

A total of 82 of 101 residents responded for an 81.2% response rate. The demographics of the cohort are presented in [Table 1](#). There were responses from residents of all PGY levels, with the most being junior residents (PGY 1 and 2), reflecting the composition of a program that includes a large number of preliminary residents. Of the responding residents, 59 were categorical and 23 were preliminary, composed of both designated specialty and nondesignated preliminary residents. Most surveyed residents attended US medical schools (78.1%).

Opioid-Prescribing Habits

The vast majority of postoperative analgesic prescriptions were narcotics ([Table 2](#)). Bedside I&D had the lowest percentage of reported postprocedure opioid prescription at 75.5%, whereas open hernia had the highest at 100%. The highest average amount of opioid prescribed was for laparoscopic colectomy (194.3 MME, standard deviation [SD] = 62.5), and the lowest was for bedside I&D (99.4 MME, SD = 82.2). For reference, 194.3 and 99.4 MME represent 26 and 13 tablets of 5 mg oxycodone, respectively. Residents reported prescribing higher amounts of opioids for open inguinal hernia repairs (175.3 MME, SD = 67.5) than for laparoscopic hernia repairs (159.5 MME, SD = 64.7).

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