

# Unwarranted Opioid Prescribing in Post-Surgical Patients – Problems & Solutions

## Introduction

Effective post-surgical pain management has always been an important outcome in a patient's recovery. Unfortunately, a myriad of factors has driven the development of a "pain-free" ethos, rather than focusing on a primary goal of making pain manageable.

This has subsequently led to the expectation that the majority of discharges should include the prescription of an opioid. As post-operative pain has become a quality indicator by which providers were compared and reimbursed, doctors, and specifically surgeons, have come under increasing pressure to over-prescribe opioids, in an attempt to improve patient satisfaction, reduce ED visits and stop unnecessary readmissions.



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## The problem explained

A retrospective cross-sectional study<sup>1</sup>, using a nationwide insurance claims dataset, analysed 87,941,718 lives between 2010 and 2016 and identified 16,292,018 opioid prescriptions filled by opioid-naive patients.

The proportion of prescriptions for patients receiving surgery, emergency, and dental care **increased by 15.8% from 2010 to 2016** ( $P < 0.001$ ), with the greatest increases related to surgical (18.1%) and dental (67.8%) prescribing. In 2016, surgery patients filled 22.0% of initial prescriptions, emergency medicine patients 13.0%, and dental patients 4.2%. Surgical patients' mean total oral morphine equivalents per prescription increased from 240mg in 2010 to 403mg in 2016 ( $P < 0.001$ ).

Over the study period, surgical patients received the highest proportion of potent opioids (90.2% received hydrocodone or oxycodone). The study clearly demonstrated that initial opioid prescribing, attributable to surgical and dental care, was increasing relative to primary and chronic pain care.

A retrospective cohort study<sup>2</sup> over a 1-year period, where 9038 women underwent post-vaginal delivery and 3288 women post-cesarean delivery, demonstrated that 30.4% and 86.7% received an opioid prescription at discharge, respectively.

Of women receiving discharge opioid prescriptions, median morphine milligram equivalents received was 200 following vaginal and 300 following cesarean delivery. Nearly half (45.7%) of women post-vaginal delivery and 18.5% of women post-cesarean delivery, who received an opioid prescription, used 0 morphine milligram equivalent during the final hospital day. Similarly, 26.5% and 18.5% of women after vaginal and cesarean delivery, respectively, reported a pain score of 0 of 10 prior to discharge.

Regardless of delivery mode, the amount of opioids prescribed did not differ between those who reported a pain score of 0 of 10 and those who reported a pain score of >0 of 10 immediately prior to discharge. Similarly, for women who underwent cesarean delivery, the morphine milligram equivalents prescribed at discharge did not differ between those who used 0 morphine milligram equivalents and those who used >0 in the 24 hours prior to hospital discharge.

Postpartum women are commonly prescribed opioids at the time of postpartum hospital discharge. There is a wide range of morphine milligram equivalents prescribed at hospital discharge following delivery, highlighting a lack of standardization. Furthermore, regardless of objective and subjective measures of pain prior to discharge, women received similar amounts of prescription morphine milligram equivalents following either vaginal or cesarean deliveries.

A study (Lee JS et al) for a single payer in Michigan<sup>3</sup> demonstrated that post-operative opioid prescribing was **not** correlated with HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) pain measures. Surgical patients are a key contributor to HCAHPS scores, and opioids account for almost 40% of surgical prescriptions. Given the growing evidence demonstrating post-operative opioid prescriptions exceed patient requirements, these findings suggest that reducing opioid prescriptions may not worsen HCAHPS scores.

A retrospective, population-based analysis of the quantity of opioids prescribed and patient-reported opioid consumption<sup>4</sup> across 33 health systems reviewed 2392 patients who underwent 1 of 12 procedures. The study showed that the quantity of opioid prescribed was significantly higher than patient-reported opioid consumption (median, 30 pills of hydrocodone/acetaminophen, 5/325 mg, vs 9 pills;  $P < .001$ ). The quantity of opioid prescribed had the strongest association with patient-reported opioid consumption, with patients using 0.53 more pills (95% CI, 0.40-0.65;  $P < .001$ ) for every additional pill prescribed.

Patient-reported pain in the week after surgery was also significantly associated with consumption but not as strongly as prescription size. Compared with patients reporting no pain, patients used a mean 9 more pills if they reported moderate pain and 16 more pills if they reported severe pain ( $P < .001$ ). The quantity of opioid prescribed is associated with higher patient-reported opioid consumption. Most patients who receive opioids after surgery do not dispose of leftover medication, posing a further risk for diversion and abuse by other patients.

## Finding the solution

Based on the above, there have been several single institution initiatives that have successfully reduced prescribing by matching postoperative prescription size to patients' opioid consumption in selected general surgery procedures. In one such institution<sup>5</sup>, patients undergoing laparoscopic cholecystectomy were surveyed regarding how much opioid medication they used after surgery. Patient responses were used to develop evidence-based prescribing recommendations. These recommendations resulted in an immediate and sustained 63% reduction in opioid prescription size without an increase in refill requests or patient-reported pain scores.

This study also identified several factors that were associated with opioid consumption following surgery. Patient-specific factors associated with increased opioid consumption included tobacco use and ASA (American Society of Anesthesiologists physical status) classes IV through V. Obese patients also trended toward significantly higher opioid use.

Smoking is known to be associated with higher pain intensity and opioid use after surgery. Increased opioid use in patients with the highest ASA classification may be explained by the fact that preoperative opioid use is more common in patients with a greater number of comorbidities. These patients also often have prolonged periods of recovery following surgery, with pain delaying their return to baseline functional status.

Conversely, outpatient surgery and increasing age were associated with decreased opioid consumption. The former finding may reflect the presence of fewer comorbidities in patients who are candidates for outpatient surgery, as well as the more routine use of multimodal analgesia in this setting.

These results may assist surgeons in using patient characteristics to provide opioid prescriptions that more accurately reflect a given patient's analgesic needs following surgery. For example, for 2 patients undergoing the same operation, these data suggest that a surgeon may comfortably expect an 80-year-old male non-smoker to require significantly less postoperative analgesia than a 30-year-old female smoker with multiple comorbidities.

In a study of 8975 patients 1-year after fast-track hip or knee arthroplasty<sup>6</sup>, the majority of patients had decreased opioid consumption, whilst 9% of patients had increased opioid consumption. However, for patients with preop opioid use, risk of increased consumption was as high as 20%.

Other useful predictors of the risk of OUD (Opioid Use Disorder) in the adult postsurgical population include history of substance abuse, any physical malady, mental health history, and use of sedatives/hypnotics. Use of screening tools, such as the Opioid Risk Tool<sup>7</sup>, can also help to identify patients at risk of postoperative opioid abuse, encouraging vigilance of medical providers when prescribing opioids.

## Conclusion

### In summary:

- Opioid prescriptions in surgical, and dental, patients continue to rise despite the recent focus on the opioid crisis
- There is a dearth of standardized post-surgical opioid prescribing guidelines
- Current prescribing practice does not necessarily discriminate between patient-reported pain scores, inherent patient factors and the procedures they underwent
- In general, patients are prescribed too many opioids pills at discharge, driving over consumption and waste – which then leads to diversion and abuse
- Identifying patients at high risk of opioid use disorder pre-operatively, can help influence opioid use prescribing practices intra- and post-operatively

In the future, there is a great opportunity to target patients with specific prescribing regimes based on their individual risk factors. While guidelines for opioid management in the treatment of chronic pain have significantly impacted opioid prescribing practices, clinical practice guidelines for the management of postoperative pain have not gained traction.

Although creating a one-size-fits-all formula that would encompass individual patient pain management requirements for various surgeries would be difficult, inter-specialty collaboration among surgeons, anesthesiologists, and primary care physicians can help address the absence of opioid prescription guidelines for acute postoperative pain.

But in the immediate term, the following interventions may help to drive improvement in opioid prescribing during the peri-operative process:

- Early identification of at-risk patients pre-operatively using simple pre-assessment evaluation criteria
- Improved communication between care teams - the preanesthetic clinician, the primary care and surgical teams can help improve patient analgesic management and minimize dependence on an opioid prescription for pain management
- Education about postoperative pain and its management can potentially reduce patient anxiety and prepare patients for reducing opioid analgesia. The preoperative discussion should involve an explanation of pain that includes the important information that the treatment of pain does not necessarily mean the absence of pain. With this understanding, patients can be better readied to cope with the anticipated pain after surgery.
- During the preoperative discussion, the adverse effects of opioids should also be discussed in depth and the negatives of long-term opioid use explained. While opioid medication may be a necessary part of acute postoperative pain management, use should be minimized and every effort made to discontinue as soon as appropriate. As postoperative pain subsides, alternatives to opioid medications must be emphasized.
- Increased attention must be given to standardization of postoperative pain management and opioid prescribing as widely differing postoperative opioid prescriptions are provided by different providers to similar patients undergoing similar procedures. The need for consensus on recommendations and guidelines is evidenced by the highly variable opioid prescribing practices across providers.

The number of patients undergoing pre-assessment and surgery within a surgical department is vast. Anesthesia and surgical teams are busy, and the time available to identify and individually coach patients about their procedure, their recovery, and managing post-operative pain is limited. Systems that are able to autonomously triage high-risk patients, to target them with information about pain management, and to monitor their post-op pain scores and opioid consumption, can have a substantial impact in reducing the inappropriate use of opioids in post-surgical patients.

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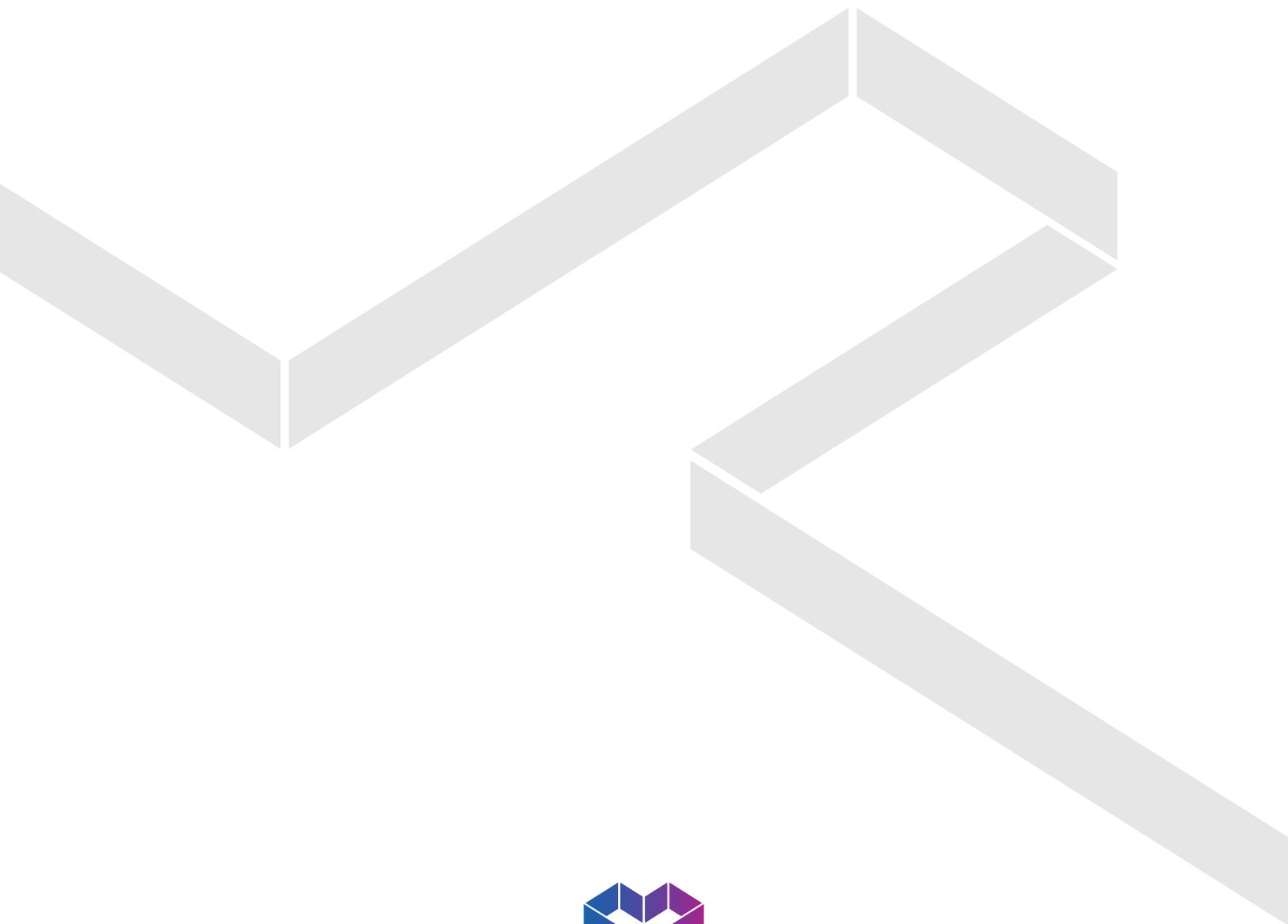
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