

Discharge Opioid Prescriptions

Adam Fambiatos^{1†}, Alex Konstantatos²

¹Anaesthetic Registrar, The Alfred Hospital, Melbourne, Australia

²Consultant Anaesthetist and Pain Specialist, The Alfred Hospital, Melbourne, Australia

Edited by: Dr Amanda Baric

†Corresponding author e-mail: adamfambiatos@gmail.com

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KEY POINTS

- Although useful as analgesics, there are significant risks associated with opioid medications, and overprescription of these agents has contributed to a worldwide opioid epidemic.
- The quantity of opioid medication dispensed to a patient on discharge should be conservative and tailored to their surgery, comorbidities, and inpatient analgesia patterns.
- If the patient has required no opioid medication in the last 24 hours, they do not need opioids to be prescribed on discharge from the hospital.
- Doctors should always prescribe opioid medications with simple analgesia and nonpharmacologic adjuncts.
- Slow-release opioids should not be prescribed on discharge following routine surgery.
- Patients requiring large doses of opioids as inpatients or considered at risk of persistent new opioid use should undertake inpatient opioid de-escalation.

INTRODUCTION

Postoperative analgesia is an essential aspect of a patient's perioperative journey, potentially affecting recovery, quality of life and overall experience. Opioid-based medications remain the mainstay of multimodal treatment for severe postoperative pain. In the United States, up to 70% of patients who underwent simple surgical procedures were discharged with a prescription for opioids.¹ Concerningly, up to 6.5% of previously opioid-naive patients will continue to use opioids more than 6 months after discharge from hospital, even if they underwent minor surgery.² Given the number of procedures performed every year, persistent opioid use after routine surgery represents a significant health challenge.

Despite the many benefits of prescription opioids, the world is experiencing an increase in opioid-related morbidity and mortality (the 'opioid epidemic'). In Australia, prescription opioids are implicated in 70% of these adverse events³; in countries such as the United States of America, the number of deaths from prescription opioids is rising, and millions more are affected by opioid abuse and dependence.⁴ Careful and appropriate prescribing of these agents on discharge from hospital is essential to prevent harm.

OPIOIDS

Commonly prescribed opioids on discharge from hospital include oxycodone, morphine, and buprenorphine; however, many others are available. These agents act on mu opioid receptors in the dorsal horn of the spinal cord to reduce nociceptive signals via the ascending pathway but also act on mu receptors in the descending inhibitory pathway to reduce pain signalling, resulting in analgesia.⁵ Atypical opioids, such as tramadol and tapentadol, are also often prescribed on discharge from the hospital. Although these agents have additional mechanisms of action, they should be considered like full agonist opioids with respect to their efficacy and risks.

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Some opioids are available in both immediate and slow-release forms. The Australian and New Zealand College of Anaesthetists have released a position statement that does not recommend combinations of slow-release and immediate-release opioids for the management of acute pain due to an increased risk of respiratory depression and aberrant long-term opioid use. This same sentiment is shared by many medical colleges worldwide. Given that most postoperative pain will be acute and likely diminish over time, prescribing slow-release opioids for routine surgery is inappropriate and should be avoided. In rare and unique circumstances, these agents could be considered for discharge prescription, but this should be done in consultation with specialist pain physicians.

RISKS OF INAPPROPRIATE OPIOID PRESCRIPTION

Overprescription

The most severe consequence of overprescribing opioid analgesia is opioid-induced ventilatory impairment (OIVI), which can place the patient at risk of death. Due to their actions on mu receptors in the medulla, opioid medications can inhibit the respiratory centre, resulting in hypoventilation and apnoea. In severe cases, this can lead to hypoxic brain damage and death. Fortunately, the risk of OIVI occurring postoperatively in an acute pain setting is thought to be less than 0.5%.⁶

Prescription opioids are also associated with an increased risk of falls, motor vehicle accidents, and other accidents, with the greatest risk occurring in the initial few weeks after commencing opioid therapy.⁷

Excessive prescription of opioids increases the risk of ongoing new postoperative opioid use, opioid tolerance, and opioid-induced hyperalgesia. Tolerance describes the same dose of drug having a diminished effect on the body, while opioid-induced hyperalgesia describes the phenomenon whereby prolonged exposure to opioids causes increased sensitivity to pain with increasing opioid dose. The prescription of any opioid-based analgesia increases the risk of developing long-term opioid use, and this risk increases with every additional week of use.⁸ The use of opioids following surgery should therefore be restricted to the shortest possible duration.

Opioid diversion can have profound effects on the community. Studies have shown that patients with unused opioid tablets are sometimes willing to share or sell them to others, with the most common source of prescription opioids used for recreational purposes being from a friend or relative.⁹ Appropriate and responsible prescription of these drugs is vital to reducing their availability in the community.

Underprescription

Underprescription of opioid-based medications as part of a multimodal analgesia regimen is also not without risk despite being less well characterised. Poorly treated acute pain can 'wind up' the dorsal horn via repeated activation of *N*-methyl-D-aspartate receptors, leading to sensitisation of nociceptive pathways and progression to chronic pain. Chronic pain (persisting for longer than 2 months) that occurs following surgery is defined as chronic postsurgical pain (CPSP).

Poorly controlled postoperative pain may also lead to longer inpatient stays and patient re-presentation to hospital emergency departments. Patients unable to breathe deep and cough are at increased risk of developing postoperative atelectasis and pneumonia, and those too uncomfortable to ambulate may be at increased risk of deep vein thrombosis and pulmonary embolism.¹⁰ Such complications may require readmission to hospital and may have severe consequences for patients.

Delayed Diagnosis of Surgical Complications

Persisting pain may herald significant complications such as infection and bleeding. These always need to be considered and excluded when assessing postoperative pain that is worsening with time, as the treatment should be directed toward managing the underlying cause (eg, draining a haematoma or abscess, decompressing a compartment syndrome or initiating antibiotic therapy) while also providing supportive analgesia.

FACTORS DETERMINING THE APPROPRIATE AMOUNT OF DISCHARGE OPIOIDS

The type of surgery can influence the amount of opioid required at hospital discharge. This is reasonably intuitive; a patient who has had a carpal tunnel release would not be expected to require the same amount of opioid analgesia as an open aortic aneurysm repair, for instance. Many guidelines recommend that opioids be prescribed according to how rapidly the patients are expected to recover after their surgery, with fewer opioids recommended when rapid recovery is anticipated.¹¹ The nature of the postoperative pain is also important; neuropathic pain is unlikely to respond to opioids, making large quantities of discharge opioids inappropriate.

Patients more sensitive to opioids, such as the elderly or those with untreated obstructive sleep apnoea, are at greater risk of OIVI, and a dose reduction should be considered when prescribing opioids for discharge. The amount of full agonist opioid prescribed can be reduced or substituted with atypical opioids (such as tramadol and tapentadol) if there are no

contraindications. Conversely, patients who suffer from chronic pain may need the dose of opioid increased to manage their pain appropriately. This subgroup of patients will require specialist postoperative pain service input (usually comprising pain physicians and pain liaison nurses).

Patients with a history of anxiety or depression, those with a substance abuse disorder, and those who are younger (18-30 years) are also at a higher risk of persistent postoperative opioid use.¹¹ Patients with a substance abuse disorder and perioperative pain should be managed jointly by specialist pain and addiction medicine services.

TECHNIQUES TO MINIMISE OPIOID PRESCRIPTION ON DISCHARGE

Some institutions have developed guidelines for prescribing discharge analgesia, which can be calculated from the total amount of opioid consumed in the previous 24 hours or based on the type of surgery. Evidence-based guidelines at one institution have revealed that opioid estimates can exceed the actual quantity required by 60%.¹² The University of Michigan has developed a website with recommendations for discharge analgesia according to surgery based on historical data collected from postoperative patients in the United States.¹³ These data could be used as a starting point to determine an appropriate amount of opioid for discharge.

Hill et al.⁹ have suggested an even simpler regime for patients following intra-abdominal surgery. For those discharged on postoperative day (POD) 1, 15 opioid tablets are suggested. For those discharged on POD 2 or later, the quantity is determined by the amount used in the previous 24 hours: if none were taken, then no opioids are dispensed; if 1 to 3 pills were taken then, 15 are prescribed; and if 4 or more were taken then, 30 are prescribed.⁹ A consensus statement by the *Canadian Journal of Pain* has published a more comprehensive regimen based on the type of surgery and expected postoperative recovery.¹¹ Irrespective of the prescriber's method, the amount of discharge opioid should be tailored to the patient (rather than simply prescribing a whole packet of opioids). Importantly, patients who have not received any opioid medications in the last 24 hours need not be discharged home with any opioid medications.

Inpatient opioid de-escalation may also reduce the amount of opioid required on discharge and should be considered for all patients on high doses of opioids or those at risk of persistent opioid use. A simple regime may include reducing the total dose of opioid available to the patient by 25% to 50% every 1 to 3 days depending on their progress, which reflects the expected trajectory of postoperative pain. In addition to assisting with this weaning process, hospital pharmacists may also act as a further safety net to recognise where a prescription for discharge opioids may be unnecessary or excessive and can assist with patient education.

Ideally, patients should receive the same type of opioid on discharge that they have been receiving in the hospital to ensure it is well tolerated and for patient safety.¹¹ Co-prescribing strict regimens of simple analgesics at discharge with opioids (if required) should reduce discharge opioid requirements further. Discharge prescriptions are often written in advance for patients to increase efficiency and hospital workflow; however, this may not capture the patient's recent opioid consumption pattern and is likely to lead to overprescription.

LIMITING HARM FROM PRESCRIPTION OPIOIDS

Harm from prescription opioids can be reduced by adhering to simple principles. If possible, preoperative counselling about realistic goals of postoperative pain, as well as expected pain trajectories over time, can help set patient expectations. Emphasis on functional related analgesic goals should be highlighted, prioritised and discussed. Furthermore, patients and caregivers should be educated about non-opioid-based multimodal regimens and given easy to follow protocols. Patients should be assessed for their risk of prolonged postoperative opioid consumption using a risk stratification using a tool such as the Opioid Risk Tool,¹⁴ and the results of this should influence the amount and type of postoperative analgesia prescribed as well as the need for specialist intervention to co-manage opioid therapy. If real-time prescription monitoring is available, this could be checked to confirm whether a patient is likely to be opioid naïve or not and whether they are at a higher risk of abuse. In some institutions, patients at high risk of developing CPSP or persistent opioid use can be referred to a transitional pain service, which aims to address perioperative pain, prevent the development of CPSP and reduce postoperative opioid consumption through multimodal analgesia and multidisciplinary input.¹⁵

Postoperatively, the amount of opioid at discharge should be considered in the context of surgery and patient-related risk factors for developing complications. The first decision is whether an opioid prescription is necessary—for example, if no opioid has been used in the preceding 24 hours, then none should be prescribed on discharge. Another consideration is whether an atypical opioid (such as tramadol or tapentadol) can be prescribed instead of a full agonist opioid (such as oxycodone). Atypical opioids are still subject to many of the same problems as full agonist opioids but to a lesser degree and may offer similar analgesic benefit to patients in higher risk groups such as the elderly or those with sleep apnoea.

If opioids are required, they should be prescribed with regular paracetamol (acetaminophen) and/or a nonsteroidal anti-inflammatory drug, if not contraindicated. This is because there is evidence of significant dose-sparing effect and reduced morbidity associated with postoperative opioid analgesia when they are co-prescribed with simple analgesia.¹⁶ All analgesia

should also be prescribed in conjunction with nonpharmacologic strategies (eg, physiotherapy, ice or heat, rest, elevation, abdominal binders) where possible. The prescription should have an end date and the size of the prescription should be limited. Patients should be given written and verbal information about the harms of opioid analgesia and how to discard any remaining medications once they are recovered; hospital pharmacists should be involved in this process. Importantly, follow-up with the patient's local doctor should be organised for soon after discharge to re-evaluate the need for further prescription of opioids if indicated.

SUMMARY

Opioid-based analgesic agents are commonly prescribed for moderate to severe postoperative pain. Despite this, there are significant risks associated with this class of medications, including atypical agents such as tramadol and tapentadol. Opioids should always be prescribed with nonopioid analgesia, and the amount of opioid dispensed on discharge should be tailored to the patient and their surgery. Importantly, not every patient requires a prescription for opioids on discharge, and slow-release opioid formulations should be avoided for treating acute postoperative pain in most cases.

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