

# Supplemental Guidance on Prescribing Opioids for Postoperative Pain

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This supplement was developed by the Dr. Robert Bree Collaborative (Bree Collaborative) and the Washington Agency Medical Directors' Group (AMDG) in collaboration with an advisory group of the state's academic leaders, pain experts and surgeons in general care and specialty areas in response to the growing opioid crisis. It supplements the [AMDG Interagency Guideline on Prescribing Opioids for Pain postoperative](#) opioid recommendations, and the best practices from the [AMDG/Bree Dental Guideline on Prescribing Opioids for Acute Pain Management](#). The included evidence represents a rapidly evolving literature on appropriate postoperative opioid prescribing. The recommendations in this supplement are based on the current best available clinical and scientific evidence from the literature and a consensus of expert opinion and should be seen as an addition to, rather than a replacement of, the guidelines for opioid prescribing for postoperative pain in the 2015 guideline.

## At Time of Discharge

### Clinical Recommendations

Although opioids are often indicated to manage severe acute post-operative pain, recent studies show that patients often receive more opioids for home use than are necessary for pain related to many procedures. This may result in dangerous and illegal diversion of opioids to those for whom opioids were not prescribed. Increased duration of initial opioid prescription has also been associated with increased incidence of chronic opioid use and risk of opioid misuse and overdose. There is no optimal number of pills for a given procedure, but the following recommendations are intended to serve as a general framework for managing postoperative pain, while minimizing leftover pills. To the extent possible, the durations and numbers in the table are based on the currently available evidence. The Bree classifications in table I are constructed around the evidence to date and can serve as a guide for procedures with similar degrees of expected post-op pain.

**Prescribing opioids for postoperative pain should, in most cases, follow the guidance in Table 1. The rationale for any exceptions should be well documented in the record. Even in these exceptions the initial prescription should not exceed two weeks.**

**Table 1. Evidence-Based Duration of Opioid Prescriptions Suggested on Hospital Discharge Following Surgeries (based on data showing that these opioid prescription durations are adequate to treat post-operative pain in >75% of patients without refills)**

<b>≤ 24 years old</b>	
Dental extractions (e.g., third molar, wisdom tooth removal)	<ul style="list-style-type: none"> <li>Prescribe a nonsteroidal anti-inflammatory drug (NSAID) or combination of NSAID and acetaminophen for mild to moderate pain as first line therapy.</li> <li>If opioids are necessary, prescribe ≤ 3 days (8 to 12 pills) of short-acting opioids in combination with an NSAID or acetaminophen for severe pain.</li> </ul>
<b>Adults</b>	
<b>Type I – Expected rapid recovery Rapid Rehabilitation</b>	
Dental extractions or simple oral surgery (e.g., graft, implant)	<ul style="list-style-type: none"> <li>Prescribe NSAID or combination of NSAID and acetaminophen for mild to moderate pain as first line therapy.</li> <li>If opioids are necessary, prescribe ≤ 3 days (e.g., 8 to 12 pills) of short-acting opioids in combination with an NSAID or acetaminophen for severe pain.</li> </ul>
Procedures such as hernia repair, laparoscopic appendectomy, inguinal hernia repair, carpal tunnel release, thyroidectomy, laparoscopic cholecystectomy, breast biopsy/lumpectomy, meniscectomy, lymph node biopsy, vaginal hysterectomy	<ul style="list-style-type: none"> <li>Prescribe non-opioid analgesics (e.g., NSAIDs, acetaminophen) and non-pharmacologic therapies as first line therapy.</li> <li>If opioids are necessary, prescribe ≤ 3 days (e.g., 8 to 12 pills) of short-acting opioids for severe pain.</li> </ul>
<b>Type II –Expected medium term recovery Moderate Rehabilitation</b>	
Procedures such as ACL repair, rotator cuff repair, discectomy, laminectomy, open or laparoscopic colectomy, open incisional hernia repair, open small bowel resection or enterolysis, wide local excision, laparoscopic hysterectomy, simple mastectomy, cesarean section	<ul style="list-style-type: none"> <li>Prescribe non-opioid analgesics (e.g., NSAIDs, acetaminophen) and non-pharmacologic therapies as first line therapy.</li> <li>Prescribe ≤ 7 days (e.g., up to 42 pills) of short-acting opioids for severe pain.</li> <li>For those exceptional cases that warrant more than 7 days of opioid treatment, the surgeon should re-evaluate the patient before a second refill and taper off opioids within 6 weeks after surgery.</li> </ul>
<b>Type III – Expected longer term recovery Extended Rehabilitation</b>	
Procedures such as lumbar fusion, knee replacement, hip replacement, abdominal hysterectomy, axillary lymph node resection, modified radical mastectomy, ileostomy/colostomy creation or closure, thoracotomy	<ul style="list-style-type: none"> <li>Prescribe non-opioid analgesics (e.g., NSAIDs, acetaminophen) and non-pharmacologic therapies as first line therapy.</li> <li>Prescribe ≤14 days of short-acting opioids for severe pain.</li> <li>For those exceptional cases that warrant more than 14 days of opioid treatment, the surgeon should re-evaluate the patient before refilling opioids and taper off opioids within 6 weeks after surgery.</li> </ul>

Patients on Chronic Opioid Analgesic Therapy	
Elective surgery in patients on chronic opioid therapy	<ul style="list-style-type: none"> <li>• Prescribe non-opioid analgesics (e.g., NSAIDs, acetaminophen) and non-pharmacologic therapies as first line therapy.</li> <li>• Resume chronic opioid regimen if patients are expected to continue postoperatively.</li> <li>• Follow the recommendation above for prescribing the duration of short acting opioids following a particular surgery (e.g., 3, 7, or 14 days). An increased number of pills per day may be expected compared to an opioid naïve patient. The daily opioid use required as an inpatient post-operatively has been suggested to be the best guide for initial outpatient dosing at the start of a taper.</li> <li>• For those exceptional cases that warrant more than 14 days of opioid treatment after hospital discharge, the surgeon should re-evaluate the patient before refilling opioids and taper off opioids within 6 weeks after surgery to no higher total daily dose than was present pre-operatively.</li> </ul>

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Although a prescription may be written for frequent dosing intervals such as “prn every four to six hours”, avoid routine dispensing of the number of pills that equals the total allowable maximum dosing. For example; patients using two pills prn every four hours on hospital discharge post-operatively would be calculated to need as much as 84 pills in the next week. A patient should be expected to need less frequent dosing however as pain resolves and thus will likely need a significantly lower number of pills (as little as half) for a specific specified timeline (e.g., three, seven, or 14 days). In the above scenario, the patient could be dispensed 42 pills with instructions that the prescription should be taken as needed for severe pain and will probably last a week as healing continues. While pain may persist for many weeks following some surgeries, patients who are unable to taper opioid use to coincide with expected healing or who report pain severe enough to warrant ongoing opioid use after the procedure-specific usual number of days require re-evaluation in an effort to understand the factors delaying a normal course of recovery.

Follow-up visits should include documentation of the measures used to determine success of opioid treatment if opioids are continued - including at a minimum:

- Change in pain level;
- Change in physical function;
- Change in psychosocial function;
- Change in medical condition; and
- Diagnostic evaluations to investigate causes of continued acute perioperative pain (e.g., infection, ischemia, or lack of healing).

Acute pain lasts no longer than six weeks and opioid prescribing for pain more than six weeks after surgery should be treated as subacute or chronic pain ([AMDG Interagency Guideline on Prescribing Opioids for Pain](#)).

## Evidence

Acute pain after surgery has, for many years, been shown to be treated inadequately (1). Buvanendran et al. found that 54% of post-operative patients had “moderate to extreme pain” at hospital discharge after inpatient surgery (2) and 46% of patients still had “moderate to extreme pain” two weeks later (2). As in other areas of pain management however, the high prevalence of pain does not necessarily imply a shortage of opioids (3). Indeed, Hill et al. (4) reported that patients take only 34% of the opioid pills prescribed for them after five different surgeries and numerous other studies have supported these findings that the number of opioid pills prescribed for many different surgeries is much more than is needed (e.g., five-16). This over-abundance of opioids prescribed after surgery is particularly concerning when viewed in the light of generally inadequate systems for opioid safe storage and disposal (9). This sets the stage for drug diversion in the home - a common route for opioid misuse and overdose (17). Post-operative opioid over-prescribing may also be unsafe for those who are prescribed the drugs. For example, Brummett and colleagues reported that, among patients who were opioid-free in the year leading up to surgery, opioid use beyond 90 days postoperatively occurred in approximately 6.0% of adults (18) and 4.8% of 13-21 year olds (19) following a variety of surgeries. Moreover, Shah et al. found that the likelihood of persistent opioid intake one year after initial prescription increased by one percent per day for each day beyond day three of the first prescription (20). Long-term opioid use is not always unintended and, even when unintended, it may be due to many patient, environmental and prescriber characteristics (21). Nonetheless, Brat et al. (22), examining a nationwide insurance database of more than a million opioid-naïve surgical patients, identified the duration of initial prescription after surgery as a risk factor for later opioid misuse (dependence, abuse, or overdose) diagnoses. Although only 0.6% of post-operative patients subsequently had such diagnoses, each additional week of opioid therapy prescribed was associated with an adjusted 20% increase in hazard for opioid misuse - with a total 44% increase in hazard if a refill was also needed. Clearly, improving prescribing practices towards providing shorter durations of prescribed opioids should be an important goal of post-operative prescribing guidelines assuming they are equally effective in treating pain.

Fortunately, education of surgeons at both Dartmouth (23) and Michigan (24) has had great success reducing opioid prescribing by as much as 50% without increasing post-operative pain – at least as indicated by the number of refill requests. Indeed, Scully et al. have used the likelihood of refills as a marker for appropriate prescription duration after surgery (25). In a database of more than 200,000 post-operative patients, they found that the likelihood of refills differed by length of initial prescription and that the lowest number of refills differed across types of surgeries. For example, general surgery cases had fewest refills if initial prescriptions were for nine day prescriptions. In contrast, the refill nadir followed 13 day prescriptions for women’s health procedures and this was extended to 15 days for musculoskeletal procedures. They concluded that opioid prescriptions should be no longer than these durations although they were not able to conclude with certainty how much shorter optimum prescription durations might be for each surgery type (25). Thiels (5) has also reported considerable differences in refill likelihood between surgical procedures.

Recently, the University of Michigan group using a large database from the primary commercial health insurance company in the state have taken a surgery-specific approach to appropriate lengths of post-operative opioid prescriptions. Although their data has been shared primarily on-line thus far (28), their recommendations for the number of pills to be prescribed after a particular surgery is based on evidence of how many pills were sufficient for 75% of the patients. Not all surgeries have yet been examined and, in this fast moving field, recommendations are likely to change even for surgeries that have already been examined. Use of opioids has been found to be impacted by patient education (24, 29). Many factors go into patients' use of and discontinuation of opioid medications after surgery. Gupta et al (8) found that two weeks after foot and ankle surgery, **two-thirds** of patients had stopped taking opioids. However, more than 70% still had pain. The most common reason for stopping opioids was that patients had switched to other pain medications. Thus another emphasis in post-operative pain prescribing guidelines should be the utilization of non-opioid pharmacological therapies as well as nonpharmacological therapies for post-operative pain and patient education that severe pain, rather than pain itself, should be the indication for continued opioid use.

Extrapolating from **existing** surgery-specific data **as** yet unstudied procedures, in order to guide prescribing of opioid pill numbers or durations (e.g., three, seven or 14 day durations), is not yet possible. Kim et al (7) saw large variations in mean numbers of opioid pills used by patients after upper extremity surgeries – even following surgeries on the same area (e.g., hand, wrist, elbow or shoulder) or on similar tissue types (e.g., soft tissue, bone or joint). Since the goal of pain management in the post-operative setting is always **to facilitate recovery and** improve function, we have grouped surgeries in this Guideline supplement by different durations of **recovery**. This should help guide the prescriber towards appropriate opioid treatment of post-operative pain following surgeries where surgery-specific data is not yet available. Although, the number of pills to be prescribed is probably the easiest benchmark to be included in a guideline for prescribing, dispensing or consuming medications it is important to remember that it is prescription duration that has been most associated with long-term use and misuse of opioids. Indeed, Brat et al. (22) noted that dosage was not correlated with increased risk of opioid misuse diagnoses (except with longer prescription durations). High inpatient opioid dose requirements have been found to be most predictive of high outpatient opioid requirements (6, 30) but not necessarily longer duration of use. Thus, even patients who come to surgery on chronic opioid analgesic therapy, and thus likely having opioid tolerance, may not require longer term opioid therapy for their post-operative pain than opioid-naïve patients despite their needs for higher doses of opioids during their post-operative rehabilitation.

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