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Opioids for Perioperative Pain

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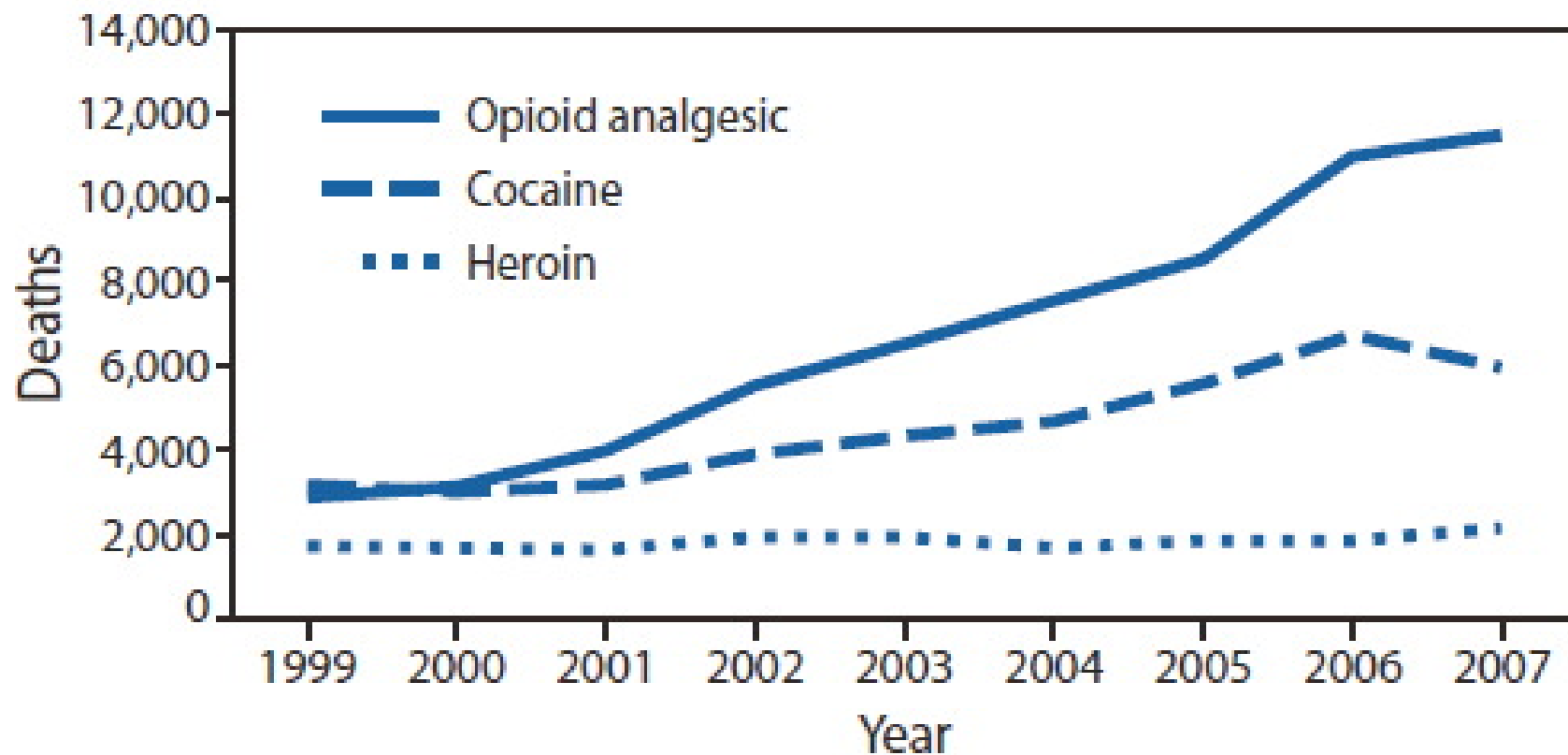
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NEWSLETTER

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Dangers of Postoperative Opioids

APSF Workshop and White Paper Address Prevention of Postoperative Respiratory Complications

by *Matthew B. Weinger, MD*

Executive Summary

In response to concerns about the safety of the use of patient-controlled analgesia (PCA) in the postoperative period, the Anesthesia Patient Safety Foundation (APSF) held a workshop in San Francisco on October 13, 2006, that was attended by over 100 clinicians, scientists, and medical industry

(notably those patients with obstructive sleep apnea) appear to be at higher risk, there is still a low but unpredictable incidence of life-threatening, opioid-induced respiratory depression in young healthy patients. Moreover, life-threatening, opioid-induced respiratory depression also occurs with intermittent parenteral injections of opioid analgesics. Data and clinical experience suggest that, while continual respiratory monitoring could detect many cases of life-threatening opioid-

the Medical University of South Carolina (Charleston, SC). Dr. Overdyk and his colleagues conducted a study (funded by the National Patient Safety Foundation) of continuous pulse oximetry and capnography in patients receiving PCA at St. Joseph/Candler Health System in Savannah, GA. The institution established alarm thresholds, and the nurses documented their response to any audible alarm. Over 4,000 hours of continuous monitoring were completed by 178 patients during



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The Joint Commission **Sentinel Event Alert**

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Safe use of opioids in hospitals

While opioid use is generally safe for most patients, opioid analgesics may be associated with adverse effects,^{1,2,3} the most serious effect being respiratory depression, which is generally preceded by sedation.^{4,5,6} Other common adverse effects associated with opioid therapy include dizziness, nausea, vomiting, constipation, sedation, delirium, hallucinations, falls, hypotension, and aspiration pneumonia.^{4,7} Adverse events can occur with the use of any opioid; among these are fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, and sufentanil. While there are numerous problems associated with opioid use, including underprescribing, overprescribing, tolerance, dependence, and drug abuse, this Alert will focus on the safe use of opioids that are prescribed and administered within the inpatient hospital setting. The Joint Commission recognizes that the emergency department presents unique challenges that should also be addressed by the hospital, but may not be directly addressed in this Alert. This Alert will provide a number of actions that can be taken to avoid the unintended consequences of opioid use among hospital inpatients.

Opioid analgesics rank among the drugs most frequently associated with adverse drug events. The literature provides numerous studies of the adverse events associated with opioids. One study found that most adverse drug events were due to drug-drug interactions, most commonly involving opioids, benzodiazepines, or cardiac medications.⁸ In addition, a British study of 3,695 inpatient adverse drug reactions found that 16 percent were attributable to opioids, making opioids one of the most frequently implicated drugs in adverse reactions.⁷ The incidence of respiratory depression among post-operative patients is reported to average about 0.5 percent. Some of the causes for adverse events associated with opioid use are:

- Lack of knowledge about potency differences among opioids.
- Improper prescribing and administration of multiple opioids and modalities of opioid administration (i.e., oral, parenteral and transdermal patches).
- Inadequate monitoring of patients on opioids.^{9,10}



Opioids for Postoperative Pain

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Management of Postoperative Pain: Clinical Guidelines

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CLINICAL GUIDELINES | AMERICAN PAIN SOCIETY



In Press, Journal of Pain

Evidence Review (554 pgs of text and 865 pgs of tables)

Results

- Hundreds of reports
- 858 primary studies
- 107 systematic reviews

GRADE methods



Opioids for Postoperative Pain

- ◆ Preoperative Period
- ◆ Intraoperative Period
- ◆ Immediate Postoperative Period
- ◆ At Time of Hospital Discharge

Although opioids serve as the cornerstone of severe acute postoperative pain management, a balanced, rational, multimodal analgesic approach is most effective in controlling such pain, while at the same time, minimizing analgesic doses and their associated side effects (that can interfere with postoperative rehabilitation).



Preoperative Period

- ◆ Perform a thorough preoperative history and physical including asking about past and current use of, response to, and preferences for particular analgesics.
- ◆ Check the Prescription Monitoring Program (PMP) – particularly in patients on chronic opioid analgesic therapy (COAT) or chronic benzodiazepine/sedative-hypnotic therapy.
- ◆ Assess risk for potential postoperative opioid over-sedation/respiratory depression (Table 4) and difficult postoperative pain control (Table 5)



Table 4: Risks for over-sedation and/or respiratory depression from postoperative opioids

- Sleep apnea or high risk sleep disorder (morbid obesity/history of snoring/positive STOP-BANG score ≥ 4)
- Age (<1 and >65 yo)
- History of previous over-sedation with opioids
- Opioid analgesic tolerance or increased opioid dose requirement
- Concurrent use of other sedating drugs (benzodiazepines, antihistamines, sedative/anxiolytics or other central nervous system depressants)
- History of difficult to control postoperative pain
- Long (>6 hrs) duration general anesthetics
- Surgery location and/or type (e.g. airway, upper abdominal, thoracic, scoliosis repair in children)
- Medical comorbidities (pulmonary disease/smoker, cardiac disease, other major organ failures)



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Table 5: Risks for difficult to control postoperative pain

- History of severe postoperative pain
- Opioid analgesic tolerance (daily use for months)
- Current mixed opioid agonist/antagonist treatment (e.g. buprenorphine or naltrexone)
- Chronic pain (either related to or unrelated to the surgical site)
- Psychological comorbidities (e.g. depression, anxiety, catastrophizing)
- History of substance use disorder
- History of “all over body pain”
- History of significant opioid sensitivities (e.g. nausea, sedation)
- History of intrathecal pump or nerve stimulator implanted for pain control



Preoperative Period

- ◆ Perform a thorough preoperative history and physical including asking about past and current use of, response to, and preferences for particular analgesics.
- ◆ Check the Prescription Monitoring Program (PMP) – particularly in patients on chronic opioid analgesic therapy (COAT) or chronic benzodiazepine/sedative-hypnotic therapy.
- ◆ Assess risk for potential postoperative opioid over-sedation/respiratory depression (Table 4) and difficult postoperative pain control (Table 5)
- ◆ Consider consultation with a specialist – particularly for patients at risk for BOTH over-sedation and difficult postoperative pain control.



Preoperative Period

- ◆ Inform the entire perioperative team of the results of the risk assessment.
- ◆ Develop a coordinated treatment plan including a timeline for tapering perioperative opioids and identifying which provider will be responsible for postoperative analgesic prescribing.
 - ◆ Generally, for opioid naïve patients, any opioids prescribed in the first 6 weeks postoperatively should be prescribed by the surgeon.
 - ◆ If a patient is using chronic opioids preoperatively for a condition being addressed by the surgery the surgeon should consult with the outpatient provider as to whether or not the chronic opioids will be continued postoperatively. Even if postoperative continuation of chronic opioids is planned by the outpatient prescriber, during the hospital stay the surgeon (or a specialist consultant) should manage ALL analgesics. At hospital discharge the outpatient provider should generally resume prescribing of the chronic opioids while the surgeon tapers off the added perioperative analgesics within the first few weeks of surgery.



Preoperative Period

- ◆ Inform the patient and family of the perioperative pain plan. Set realistic expectations with them about pain management goals, including functional recovery activities, need for multimodal treatment, limits of therapy, timely return to preoperative baseline opioid dose (if any) or lower, and the analgesic tapering timeline. Emphasize that no analgesic regimen can eliminate postoperative pain entirely though modern pain management strategies can generally reduce pain sufficiently to allow patients to perform the activities needed for postoperative rehabilitation.
- ◆ Avoid prescribing any new benzodiazepines, sedative-hypnotics, anxiolytics, or other central nervous system depressants.
- ◆ Avoid escalating opioid doses before surgery. Although the lowest effective dose should always be sought but there is insufficient evidence to recommend routinely lowering chronic opioid doses before surgery.



Intraoperative Period

- ◆ Provide balanced multimodal analgesia, including adjuvant analgesics when possible (e.g., acetaminophen, nonsteroidal anti-inflammatory drugs, gabapentin, local anesthetic infiltration).
- ◆ Under specialist direction, ketamine, intravenous lidocaine, and regional local anesthetic techniques can also help minimize perioperative opioids and their side effects.
- ◆ The operative team should give sufficient intraoperative opioids to avoid acute opioid withdrawal in patients who are on high doses of preoperative opioids.



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Immediate Postoperative Period

- ◆ If using opioids at all, utilize the lowest effective opioid dose as part of a multimodal regimen, including NSAIDs, acetaminophen, and nonpharmacological therapies unless contraindicated.
- ◆ Monitor sedation/alertness and respiratory status (hypoxia and hypoventilation signs and symptoms) closely in patients receiving opioids for postoperative analgesia in the initial hours following surgery and following dose escalations.
 - ◆ The use of routine oxygen is discouraged as hypoxia is a late sign of respiratory compromise and this sign will be delayed still further by supplemental oxygen.
 - ◆ There is insufficient evidence to recommend the routine use of currently available, more sophisticated, noninvasive methods (such as capnography) for monitoring postoperative hypoventilation.
 - ◆ Providers should be prepared to change or reduce opioids and/or administer opioid antagonists in patients who develop excessive sedation or respiratory depression.



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Immediate Postoperative Period

- ◆ Use oral analgesics for managing postoperative pain in patients that can tolerate oral medications – particularly following the first or second postoperative day, as pain levels at rest and during activity become less variable.
- ◆ Consider use of IV patient controlled analgesia (PCA) initially in cases where repeated parenteral opioids are anticipated or required. Providers should be aware of the doses being self-administered by their patients via PCA in order to guide adjustments. Routine use of continuous opioid infusions (e.g., basal rates for PCA) is NOT recommended.
- ◆ Consider consultation with specialists for patients receiving high dose PCA and when benzodiazepines, sedative-hypnotics or other opioids are being used in combination with PCA.



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Immediate Postoperative Period

- ◆ Use short-acting “as needed” (PRN) opioids as the foundation for severe acute postoperative pain in the opioid naïve patient. For the opioid tolerant patient, do not add or increase extended release or long-acting opioids in the immediate postoperative period.
- ◆ Avoid therapeutic duplication of opioids consisting of more than one type of PRN short-acting opioid (e.g., oxycodone and morphine).
- ◆ Avoid co-administration of parenteral and oral PRN opioids. If PRN opioids by different routes are needed provide a clear indication for use (e.g., for a brief, severely painful, closely monitored procedure - such as a dressing change).
- ◆ Consider scheduling non-opioid analgesics for more steady pain relief and to avoid confusion around multiple PRNs for pain.



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Immediate Postoperative Period

- ◆ Resume the chronic opioid regimen as soon as possible if patients were previously on chronic opioids and are expected to continue these postoperatively.
- ◆ Avoid adding new benzodiazepines, sedative-hypnotics, anxiolytics, or CNS depressants. If patients were previously on chronic daily sedatives, restart these at lower doses in the setting of postoperative opioids to avoid synergies between CNS depressant and opioid side effects and yet avoid sedative withdrawal symptoms.
- ◆ Initiate a bowel regimen as soon as possible postoperatively in those taking opioids to minimize opioid-induced bowel dysfunction (constipation). This side effect may still require opioid reductions if unresponsive to stool softeners, laxatives and enemas.



At Time of Hospital Discharge

- ◆ Avoid continuing or adding NEW prescriptions for benzodiazepines, sedative-hypnotics, anxiolytics or CNS depressants. Counsel patients and their families about risks of using alcohol and other CNS depressants with opioids.
- ◆ Inform the patient and family which provider will be responsible for managing postoperative pain – including who will be prescribing any opioids.
- ◆ Remind the patient of the dangers of prescription opioid diversion and the importance of secure storage of their medications. Sharing medications with others is never appropriate and is illegal. Instruct the patient and family on prompt disposal of unused controlled substances either through a DEA approved take-back program (<https://www.deadiversion.usdoj.gov/pubdispsearch/spring/main?execution=e1s1>) or via approved FDA methods for safe opioid disposal (flushing).



At Time of Hospital Discharge

- ◆ Do not discharge the patient with more than a two week supply of opioids. Many patients after certain surgeries will require less. Continued opioid therapy will require appropriate re-evaluation by the surgeon.
- ◆ Remember: For some minor surgeries, it may be appropriate to discharge patients on acetaminophen or NSAIDS only or with only a very limited supply of short-acting (e.g., 2-3 days) – even if they were taking opioids preoperatively.



At Time of Hospital Discharge

- ◆ Instruct the patient and family on the planned taper of postoperative opioids, including a timeline for return to preoperative or lower opioid dosing for those on chronic opioids. Then follow through with this plan! The goal is always the lowest effective dose for the shortest duration.
- ◆ For example, most patients, even after major surgery, should be able to be tapered to preoperative doses or lower within 6 weeks (approximately 20% of dose per week - although may be slower in the first week or 10 days and then become much more rapid as healing progresses).
- ◆ For patients who were not taking opioids prior to surgery but who are still taking them after 6 weeks, follow the recommendations in the “Subacute Phase” of part II of this Guideline.



Opioids for Postoperative Pain

Summary

- ◆ As in any other pain condition, the goal of pain management therapy in the perioperative period is to provide the briefest, least invasive, and lowest dose regimen that minimizes pain, improves function and avoids dangerous side effects.
- ◆ Hopefully, the recommendations in this guideline can aid healthcare providers in Washington State (and elsewhere) better utilize opioids in treating perioperative pain.