

Patient-Controlled Analgesia for Patients with OUD

Considerations

- Methadone or buprenorphine for opioid use disorder (OUD) or opioid withdrawal management may be continued or initiated concurrently with PCA.
- PCA is not recommended in patients who are unable to reliably use the device.
- PCA reduces delay in medication administration, allowing for improved pain management.
- Patients with opioid tolerance may require significantly higher than typical doses of opioid analgesics to adequately control pain.
 - See [Opioid Dosing for Acute Pain in Patients with OUD and High Opioid Tolerance](#) for more information.
- Dose to meet functional goals (e.g., participation in PT/OT, adequate sleep).
 - If functional status is inadequate due to pain, the opioid dose is too low and/or additional pain management modalities should be considered
- This protocol does not cover the care of patients on naltrexone. Consider expert consultation.

Related Protocols

- [Adjunct Medications](#)
- [Acute Pain in Opioid Use Disorder](#)

Clinical Guidance

Assessment

- Assess and document respiratory rate (RR), oxygenation, and pain at the following intervals:
 - Every 1 hour for the first 4 hours after PCA initiation, then every 2 hours while PCA is active.
 - Before each nursing bolus and 15 minutes after administration.
- Monitor SpO2 and respiratory rate (RR). Interpret in conjunction with level of consciousness, work of breathing, and overall clinical status.
 - RR >12: generally safe to continue opioids.
 - RR 10-11: acceptable if overall clinical status is reassuring.
 - RR <10 or SpO2 <92%: hold opioids until improved; consider resuming at a lower dose or extended interval.
 - RR <8: give naloxone 0.04 mg IV every 4 minutes until RR >10.
 - If SpO2 <95% with normal RR, evaluate clinical status and comorbidities.
 - Chronically hypoxic patients require individualized pain management with close monitoring of oxygenation.

- Sedation
 - Sedation alone should not determine opioid toxicity in opioid-tolerant patients; include the full assessment described above
 - Stimulant withdrawal, for example, can cause sedation and hypersomnia that mimics opioid over-sedation.
 - When the full assessment is reassuring, opioids should not be withheld from a patient in pain whose sedation may be attributable to stimulant withdrawal or other factors.
- Review adequacy of pain management after 4 hours and adjust dose as needed.
 - If bolus doses are required every 4 hours, consider increased demand dose.
 - If pain control is inadequate and RR is normal, consider a higher demand dose.
 - If increasing the demand dose significantly, consider a longer lock-out duration to keep the hourly ceiling bounded.
 - See Pharmacotherapy for drug-specific dose adjustments.
 - SpO2 <92%: hold opioids; consider resuming at a lower dose or extended interval once improved.

Pharmacotherapy

Provide multimodal pain management and maximize non-opioid pain interventions. Consider acetaminophen, NSAIDs, gabapentinoids, alpha-2 agonists, muscle relaxants, local anesthetics, pain dose ketamine, regional anesthesia, and nonpharmacologic approaches. See [Adjunct Medications](#).

Medication Selection

- Hydromorphone is the preferred PCA opioid due to its lower side effect profile, longer duration of action, and improved metabolic clearance.
- Morphine is an acceptable alternative but carries a higher risk of nausea and pruritus from histamine release.
- Fentanyl is not recommended due to its short duration, requiring increased dosing frequency.
- Reduce dose and/or extend dosing interval for renal or hepatic dysfunction.

Dosing

No absolute maximum dose is specified; dosing should be individualized based on pain control, functional status, opioid tolerance, and safety monitoring. Hold all opioids for RR <10 or SpO2 <92% (see Assessment).

PCA Dosing

Onset of analgesia for both agents is 5-10 minutes.

	HYDROMORPHONE	MORPHINE
Demand dose	0.3 mg IV	1.5 mg IV
Lockout interval	8 min	8 min
Peak effect	10-20 min	20 min
Continuous infusion	None	None
Max dose	Titrate to effect	Titrate to effect

Clinician Bolus

Offer at initiation and for breakthrough pain. Minimum 4 hours between series.

	HYDROMORPHONE	MORPHINE
Bolus dose	0.3-0.6 mg (1-2x demand)	1.5-3 mg (1-2x demand)
Boluses per series	Up to 4	Up to 4
Interval between boluses	10 min	15 min

Inadequate Pain Relief

- Ensure non-opioid pain management is maximized.
- Consider a higher on-demand dose with a longer lock-out duration. Lengthening the lockout as the dose rises keeps the hourly ceiling bounded.
 - Hydromorphone: if demand dose reaches 0.5 mg, extend lockout to 12-15 min and reduce bolus to 0.5-0.75 mg per bolus (1-1.5x demand dose).
 - Morphine: if demand dose reaches 3 mg, extend lockout to 12-15 min and reduce bolus to 3-4.5 mg per bolus (1-1.5x demand dose).
- If demand dose or bolus has been escalated more than once, or if anticipated PCA use is likely to exceed the *Higher PCA Use* reference range (see table below), consult pharmacy and/or a pain specialist to develop an individualized transition plan, including expected oral conversion and discharge regimen.
 - Consult through [University of Washington Pain & Opioid Provider Hotline](#) is available Monday through Friday (excluding holidays), 8:30 AM to 4:30 PM.
 - Phone: 844.520.PAIN (7246)
 - Email: painhotline@uw.edu

Transitioning from PCA to oral opioids

- Consider transitioning to oral when:
 - Pain is well controlled on current PCA regimen.
 - The patient can tolerate oral medications.
 - The timing of the transition is as expected for the procedure/injury or extended 1-2 days longer to allow for MOUD stabilization.
- Prior to transitioning, counsel patient on what the taper will look like, what pain level to expect, and what the plan is if pain is not adequately controlled.
- Continue nonopioid analgesics and MOUD.
- The table below provides suggested oral opioid doses based on PCA utilization.
 - Patients with high opioid tolerance will typically fall in the *Higher PCA Use* column.
 - The *Standard PCA Use* column is included for reference and for patients who may have required lower doses.
 - These oral doses assume the patient remains on methadone or buprenorphine, which covers the baseline opioid requirement; the doses below replace only the acute-pain component and reflect a reduction for incomplete cross-tolerance. They are not a standalone equianalgesic conversion of total PCA use.

ORAL REGIMEN	STANDARD PCA USE	HIGHER PCA USE*
Hydromorphone IV reference	0.2 mg demand + 0.2-0.4 mg bolus (~3-6 mg/8 hrs)	0.3 mg demand + 0.4-0.6 mg bolus (~6-9 mg/8 hrs)
Morphine IV reference	1 mg demand + 1-2 mg bolus (~15-25 mg/8 hrs)	1.5 mg demand + 2-3 mg bolus (~30-40 mg/8 hrs); or ≥4 bolus series/24 hrs
PO oxycodone	5-10 mg Q4H PRN**	5-10 mg Q3H PRN or 5-15 mg Q4H PRN
PO hydromorphone	2-4 mg Q4H PRN	2-4 mg Q3H PRN or 2-6 mg Q4H PRN
PO morphine	7.5-15 mg Q4H PRN	7.5-22.5 mg Q4H PRN

* For PCA use exceeding this reference range (e.g., ≥4 bolus series/24 hrs), the PO doses are a starting point only; consult pharmacy for an individualized conversion.

**PRN moderate/severe pain

If PCA utilization is too high to convert directly, reduce the demand dose, decrease the bolus, and extend lockout to 12-15 minutes. Transition to oral the following day. Leave the PCA active for up to 1 hour after the first oral opioid dose, then discontinue.

Special Populations

Pregnancy and postpartum

- This protocol may be used in pregnant and postpartum patients.
- Take extra care to prevent opioid withdrawal and create a pain-management plan with the patient and other specialists as needed.

REFERENCES

1. Buys MJ. Use of opioids for acute pain in hospitalized patients. In: Maniker R, Li H, Nussmeier NA, eds. UpToDate. UpToDate, Inc; updated 10 Jun 2025. Accessed 19 May 2026.
2. Lai L. Transitioning off of Patient Controlled Analgesia. University of Washington/Harborview Medical Center OCCAM. Reviewed August 28, 2025. Reviewed by Bhalla P, Peperzak K, Meo N, Bamert K. Accessed 19 May 2026.