emergency department

Safe use of opioid analgesics in the Emergency Department

This resource has been developed to support the safe use of opioid analgesics for patients presenting with acute pain within the Emergency Department. It has been designed to be used in conjunction with best practice guidelines and the *Australian Commission for Safety and Quality in Health Care Opioid Analgesic Stewardship in Acute Pain Clinical Care Standard*.

Establish history to guide optimal pain management[1]

The biopsychosocial model of pain (**Figure 1**) illustrates the complexity of each individual's pain experience, and underpins assessment and effective pain management.[2]

Conduct patient evaluation and discuss pain management

A thorough and accurate patient-centred assessment of factors impacting on a patient's pain should occur as soon as it is practical. In time-critical situations, prioritise actions according to the patient's clinical condition.

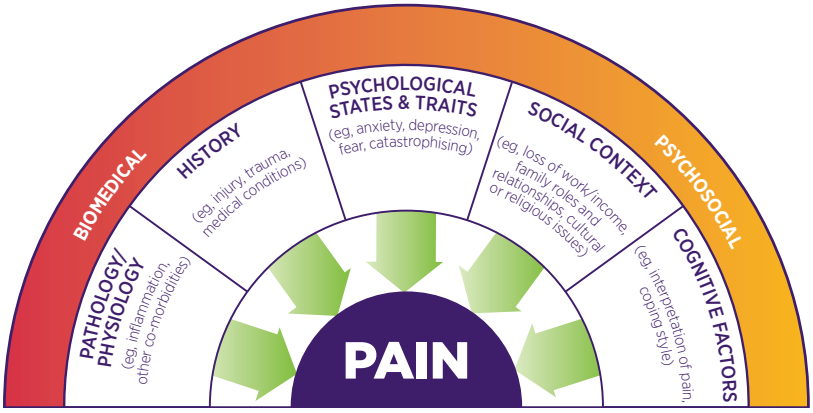

Figure 1: Biopsychosocial model of pain

- Ask the patient and/or their carers to help establish a pain history, including relevant biopsychosocial and complicating factors (**Box 1**).
- Undertake a medication history including any current, recently modified, or previously used analgesics. Review real-time prescription monitoring, My Health Record, previous medical records, or prescription records if available.
- Evaluate the patient's function at baseline, including activities of daily living. Assess how their pain is impacting on their current function.
- Discuss with patients and their carers about the expected impact of pain on function, the expected trajectory of pain and agree on pain management strategies.
- Consider referral or discussion with specialist services for patients with complex needs.

Box 1: Factors that may increase the complexity of pain management[1]

- **Patient characteristics** – cognitive impairment; culturally and linguistically diverse background; extremes of age; obesity; poor functional status at baseline; smoking status.
- **Patient history** – anxiety; allergic reaction to analgesics; chronic pain or history of poorly controlled pain; history of physical, sexual, or emotional abuse; history of substance abuse; obstetric patients; obstructive sleep apnoea; opioid tolerance or dependence; peptic ulcer disease; psychological and psychiatric comorbidities; renal impairment; severe liver disease.
- **Presenting complaint** – acute back pain, trauma, abdominal pain, migraine, neuropathic pain, renal colic.

Measure pain and function regularly using a validated assessment tool[1]

Regular assessment of pain and function will help implement, monitor and titrate pain management strategies. Patient-reported pain assessments provide useful insight into a patient's pain experience when combined with objective functional assessments (**Table 1**) and physical examination. Pain and function score trajectories provide more useful information on patient progress than the value of a single pain intensity score at one point in time.

Table 1: Functional Assessment Score[1]

A	No limitation of relevant activity due to pain (relative to baseline)
B	Mild limitation of activity due to pain
C	Unable to complete activity due to pain

- Always assess function when assessing pain intensity.
- Re-assess pain and function regularly – before administering opioid analgesic doses and at an appropriate time after.
- Tailor functional assessment of pain to the function and mechanism of pain relevant to the patient (eg, sitting-up/coughing after thoracic surgery).
- Document all assessments of pain and function clearly and ensure they are linked to the opioid analgesic prescription and sedation monitoring.

Ensure all patients receive safe and effective analgesia

Before prescribing an analgesic:

- Use non-pharmacological pain management strategies if appropriate (eg, heat/cold therapy, distraction techniques in children and adolescents, splinting and immobilisation for injuries, dressings for burns, physical therapy).

Considerations when prescribing analgesics:

- Use *multimodal* analgesia (ie, a combination of non-pharmacological strategies and different medicine classes) to improve analgesic effectiveness, decrease doses of opioid analgesics and reduce side effects (see **Table 3**, page 5, for selected analgesics).
- Choose analgesics based on the cause of pain being treated and patient co-morbidities.
- 'Simple analgesia' (paracetamol and non-steroidal anti-inflammatory drugs [NSAIDs]) may provide sufficient pain relief for many conditions and should be continued alongside opioid analgesics.
- Consider the use of regional anaesthetic techniques, such as 'nerve blocks', as an opioid-sparing strategy for severe pain.
  - Ultrasound guidance may improve technique and safety.
  - Vary the type depending on the cause of pain eg, intercostal nerve block for rib fracture, fascia iliaca block for proximal femoral fractures, femoral nerve block for distal femoral fractures.
  - Prescription and administration should be undertaken by clinicians with the appropriate training and experience.
- If an opioid analgesic is considered appropriate:
  - prescribe an immediate-release formulation at the lowest appropriate dose, for a limited duration, for use only when required.[2]
  - avoid modified-release formulations of opioid analgesics unless in exceptional circumstances (eg, pre-existing regular use of opioids).[3]
  - do not use transdermal opioids (eg, fentanyl and buprenorphine patches) for acute pain management due to titration difficulties and risk of overdose in opioid-naïve patients.
- **Review** pain management strategies regularly and **adjust** as function and pain intensity change. **Document** the outcome of the review and cessation plan.

Considerations for opioid-tolerant patients

- For patients on pre-existing opioids (including medication-assisted treatment of opioid dependence), usual pre-admission opioid regimens should be maintained where possible or an appropriate substitution made.[1]
- Opioid-tolerant patients (eg, those with pre-existing opioid use) may have significantly higher opioid analgesic requirements and interpatient variations in the doses needed than opioid-naïve patients.[1]

Use the ANCZA FPM Opioid Calculator app to:

- calculate the oral morphine equivalent daily dose for patients taking pre-existing opioids.
- guide transitions between different opioids and routes of administration.

If administering opioid analgesics:

- prior to each dose, **assess** and **document** the sedation score (**Table 2**) and pain and function score trajectories to ensure ongoing appropriateness.

Routes of administration:[2]

- Use the oral route whenever possible.
- In the Emergency Department, as respiratory depression (also known as opioid-induced ventilatory impairment [OIVI]), can be adequately monitored and addressed, intermittent intravenous (IV) opioid analgesics may be used to gain initial control of severe pain. Intranasal opioid analgesics may be of use when IV access is difficult, for example in young children.

See **Table 3** (page 5) for a selected list of medicines for acute pain and associated precautions.

Monitor and manage adverse effects[1,4]

Monitoring – sedation and respiratory depression (OIVI)[5]

- Monitor and document sedation scores in all patients receiving any opioid analgesics for pain management – increasing sedation is a more reliable indicator of early respiratory depression (OIVI) than respiratory rate.
- Closely monitor the patient's sedation score, particularly during peak concentration of the opioid analgesic administered. This will depend on the opioid analgesic used and route of administration.
- Titrate the opioid analgesic dose so the sedation score (**Table 2**) is always less than 2. See **Table 2** for suggested actions.[5]
- Link the opioid analgesic prescription to sedation and other adverse event monitoring, to ensure early recognition and response to patient deterioration.

Table 2: Sedation scoring[2,5]

Sedation scoring	Suggested action	Suggested antidotes
0 = Awake, alert	Continue routine monitoring.	
1 = Easy to rouse		
2 = Easy to rouse but unable to stay awake	Withhold opioid, reduce analgesic dose, increase frequency of monitoring and notify medical officers.	
3 = Difficult to rouse/ unconscious	Withhold opioid, administer naloxone and activate emergency medical response. Provide supportive care as required (eg, supplemental oxygen).	IV: naloxone 40–100 microgram, repeat in increments every 2–3 minutes as necessary. IM/SC: naloxone 400 microgram, repeat in increments every 5 minutes as necessary.

IM = intramuscular, IV = intravenous; SC = subcutaneous

- The risk of respiratory depression (OIVI) is increased by patient factors such as obesity, sleep-disordered breathing, chronic obstructive pulmonary disease, renal disease, cardiac disease, neurological disorders, concomitant central nervous system (CNS) depressant use, American Society of Anesthesiologists status III or IV, and age > 65 years.[5] However, many patients who develop respiratory depression (OIVI) have no identifiable risk factors.[1,5]

Monitoring – nausea and vomiting[6]

- Nausea and vomiting may occur initially with opioid analgesics but will often lessen with continued opioid analgesic use.
- Effective antiemetics include 5-HT3 antagonists (eg, ondansetron), droperidol, metoclopramide and cyclizine.

Monitoring – constipation[1]

- Monitor constipation, particularly in older patients who are at greatest risk due to immobility, poor diet, poor fluid intake or concurrent use of constipating medicines.
- Prescribe prophylactic laxatives (eg, docusate with senna, lactulose, macrogol laxatives) for anyone using opioid analgesics, unless contraindicated or not required.

Communicate pain management plan to patients and primary healthcare professionals at discharge[7]

Provide a pain management plan, as a component of discharge planning, for all patients prescribed medicines for pain on transfer of care. This should be provided in verbal and written form to the patients and/or carer and shared with primary care providers (general practitioners, community pharmacists, Aboriginal health workers, nurse practitioners etc.). This approach is likely to improve the patient's post-discharge pain experience, their use of primary care services and may reduce the risk of persistent opioid analgesic use.

For patients with complex pain management strategies or difficult-to-manage pain, referral to a pain management multidisciplinary clinic for follow-up and ongoing pain management strategies may be appropriate.

Management prior to transfer of care:

- Review analgesia requirements and consider relevant risk factors (**Box 1**).
- Check real-time prescription monitoring if available.
- If prescribing an opioid analgesic at transfer of care, use an immediate-release formulation, prescribed at the lowest appropriate dose for limited duration in line with best practice guidelines, based on the following factors:
  - Availability to see primary care provider (up to 3 days of supply, may be longer in regional/remote areas).
  - Expected intensity and duration of pain.
  - Impact of pain on function.
- Prescribe all patients taking opioids a prophylactic laxative, unless contraindicated or not required.
- Provide information to the patient about the impact of opioid analgesics on pain and function.
  - Establish that patients shouldn't necessarily expect to be pain free, but should be able to meaningfully participate in their recovery, continue to achieve appropriate functional goals, and safely carry out appropriate activities of daily living.

Pain management plan at transfer of care includes:

- Medication Management Plan, including:
  - a list of all analgesics, with dosage and administration times
  - instructions on anticipated/intended duration of therapy and reducing/ceasing analgesia where appropriate
  - any medicines that have been changed or ceased while the management plan is in place
  - important consumer-specific medicines information, such as:
    - notable drug interactions, including with over-the-counter medicines, complementary and alternative medicines, and other substances such as alcohol
    - effect of analgesics on activities of daily living (including driving). Patients should not be driving while taking opioids for the management of acute pain.
  - information about the safe storage and disposal of any unused medication
- For patients prescribed an opioid analgesic on discharge: instructions for monitoring and managing opioid-related adverse effects and minimising risk of opioid-related harm:
  - provide information about the significance of sedation to both patients and their families
  - consider take-home naloxone for patients with risk factors for respiratory depression (OIVI)
- non-pharmacological approaches to improve function while recovering
- goal of pain management strategies including functional goals
- recommended next review date with primary care providers or specialist service for both pain and other concerns.

Table 3: Selected analgesics for acute pain[1,2,4,8]

Drug class	Considerations	Precautions
Non-pharmacological measures – use wherever possible and continue alongside analgesia	▷ Distraction techniques (eg, bubbles, songs, videos, toys, music) can reduce procedure-related pain and stress in children and adolescents. ▷ Passive physical techniques may be helpful in some situations, including transcutaneous electrical nerve stimulation, acupuncture, massage, and hot and cold therapy. ▷ Patient education may reduce post-operative pain and anxiety.	▷ Likely to be more effective when acute pain is mild; can be used along with systemic analgesic therapy when pain is moderate or severe. ▷ Patient engagement with non-pharmacological strategies may prove challenging.
Paracetamol	▷ When combined with opioids, increases pain relief[1] ▷ Regular (1 g every 4–6 hours) use may reduce opioid requirements by 20–30% but has no effect on the incidence of opioid-related adverse effects. ▷ Prescribe regularly if patients are using opioids.	▷ Avoid prescribing > 1 paracetamol-containing preparation. ▷ Maximum 4 g daily dose usually recommended in healthy adults; reduce dose in malnourished, underweight, frail elderly patients. ▷ Avoid in patients with severe liver dysfunction. ▷ Only prescribe IV if oral is inappropriate.
NSAIDs (eg, conventional: ibuprofen, COX-2 selective: celecoxib)	▷ May be adequate for severe pain in patients with specific pathologies (eg, renal calculi). ▷ Are opioid-sparing and can reduce the risk of post-operative nausea and vomiting. ▷ COX-2 specific NSAIDs ('coxibs', eg, celecoxib and parecoxib) do not cause bronchospasm or platelet inhibition and short courses have no higher risk than placebo of causing gastric ulceration.[1]	▷ Monitor for side effects such as bronchospasm, gastrointestinal (eg, peptic ulceration), platelet inhibition. ▷ Increased risk of adverse effects in congestive heart failure, those at risk of renal effects (renal disease, hypovolaemia, hypotension, concurrent use of other nephrotoxic agents including antihypertensives, diuretics and aminoglycoside antibiotics), and the elderly. Use with extreme caution in these patients. ▷ Avoid use in people with an eGFR less than 30 mL/minute. Additionally, in acute pain, NSAIDs should not be used in people at risk of haemodynamic instability who have an eGFR less than 80 mL/minute, or who have post-operative or post-traumatic haemodynamic instability. ▷ Review NSAID use for acute pain after 5 days use, do not continue unless these is a good indication. ▷ Lower risk of GI bleeding or ulcers with COX-2 selective NSAIDs ▷ Use with caution in pregnant women in the first trimester and avoid in the third trimester (after 30 weeks).

Drug class	Considerations	Precautions
Opioid analgesics (eg, fentanyl, hydromorphone, morphine, oxycodone, tramadol)	▶ Prescribe initial opioid dose based on age. Opioid requirements decrease as patient age increases in adults – start low and titrate upwards as necessary. ▶ Be aware of factors that may increase risk of opioid overdose (eg, concurrent sedatives, opioid tolerance). ▶ Be aware of the different potencies of opioids, use the ANZCA FPM Opioid Calculator app to transition between opioids or routes of administration. ▶ Decrease dose by 30–50% if rotating between different opioids due to cross-tolerance. ▶ Use for opioid-responsive pain only; cease opioid if pain is not responsive to opioids, especially if sedation occurs. ▶ Do not use opioids for migraines/ headache pain within the Emergency Department. ▶ Dextropropoxyphene and pethidine have no role in pain management because their use is associated with more harm than benefit. ▶ Codeine has a limited role in pain management, oral combinations of paracetamol/ibuprofen provide superior analgesia to paracetamol/codeine. ▶ Tramadol has serotonergic and noradrenergic effects, and is as effective as morphine for some types of moderate post-operative pain. ▶ Tramadol and tapentadol have less risk of constipation and respiratory depression (OIVI) compared with other opioids. ▶ Tramadol and tapentadol may be associated with lower rates of abuse and diversion than conventional opioids.	▶ Monitor for adverse effects such as sedation, nausea and vomiting, constipation, confusion, delirium, itch, miosis, urinary retention. ▶ Avoid use of multiple opioids as risk of opioid overdose is increased (same or different route of administration). ▶ Avoid, or reduce the dose of, morphine and hydromorphone in patients with severe renal impairment. ▶ Increased risk of respiratory depression (OIVI) with other CNS depressants (eg, benzodiazepines, alcohol, gabapentinoids etc.). ▶ Hydromorphone is not recommended for acute pain given its potency, and it can be easily confused with morphine. Use should be limited to practitioners experienced in its use. ▶ Avoid tramadol in patients with history of seizures. ▶ Use tramadol and tapentadol with caution in severe renal impairment and the elderly. ▶ Be aware of rare, but potentially serious drug interactions of tramadol with MAOIs, SSRIs, TCAs, pethidine, warfarin, St John's wort. ▶ Tapentadol in combination with an MAOI has a risk of excessive noradrenaline concentration resulting in hypertension. ▶ Buprenorphine reversal requires larger doses of naloxone than conventional opioids.
Gabapentinoids (eg, gabapentin, pregabalin)	▶ Only use when there is a confirmed element of neuropathic pain.	▶ Should not be used routinely in acute pain management Increased risk of respiratory depression (OIVI) when given with opioids – use with caution in combination; if required, start with low doses. ▶ Reduce dose in patients with renal impairment according to their creatinine clearance. ▶ Monitor for adverse events such as confusion, dizziness, dry mouth, fatigue, sedation, vision disturbances. ▶ Avoid gabapentinoids in pregnancy unless the benefit outweighs the risk.
Ketamine	▶ Sub-dissociative doses can be used for analgesia within Emergency Departments. ▶ Dissociative doses may be used for procedural sedation by experienced clinicians.	▶ Adverse CNS reactions are dose related and are rare at lower doses.
Anaesthetic agents (eg, midazolam, propofol)	▶ May be useful to reduce awareness during painful procedures (eg, joint relocation, suturing of lacerations).	▶ No intrinsic analgesic effects – will not provide any pain relief. ▶ Can increase the risk of respiratory depression (OIVI) in combination with opioids.

Drug class	Considerations	Precautions
Local anaesthetics (eg, bupivicaine, lidocaine, ropivacaine, tetracaine)	▶ Can be administered topically, regionally (nerve blocks) or systemically. ▶ Target specific nerve blocks to the pain pathology (eg, fascia iliaca compartment block for proximal femoral fractures). ▶ Ultrasound guidance of regional blocks is associated with a reduced risk of local anaesthetic systemic toxicity in adults.	▶ Require specialist staff and monitoring. ▶ Administration of local anaesthetics may cause cardiac arrhythmias; prescription should occur under specialist guidance. ▶ Lipid emulsion should be available to treat toxicity from anaesthetics agents.
Inhalation agents (eg, methoxyflurane, nitrous oxide)	▶ Methoxyflurane useful in pre-hospital acute pain management. ▶ Nitrous oxide is an effective analgesic agent in a limited number of acute pain settings.	▶ Closely monitor patients using nitrous oxide especially if used with other analgesic agents. ▶ Caution for use with malnourished, vegan and patients with high alcohol intake. ▶ Repeated or prolonged use may lead to myelosuppression (usually reversible) or a neuropathy (potentially irreversible). ▶ Caution for use of nitrous oxide in the first trimester of pregnancy as it is known to deplete folate and B12.
Triptans (eg, eletriptan, naratriptan, rizatriptan, sumatriptan, zolmitriptan)	▶ If the patient has migraine-associated severe early nausea, a tablet that dissolves on the tongue or a non-oral preparation (eg, nasal or injectable) may be helpful.	▶ Risk of medication over-use headaches if used for more than 10 days in a month. ▶ Do not give ergotamines for 24 hours before or after a triptan.
Chlorpromazine	▶ Effective in termination migraines/ headaches not responsive to NSAIDs or triptans.	▶ Can cause hypotension; ensure patient is well hydrated. ▶ Monitor patients for acute dystonic reactions.

ANZCA FPM = The Australian and New Zealand College of Anaesthetists Faculty of Pain Medicine; CNS = central nervous system; COX-2 = cyclooxygenase-2; eGFR = estimated glomerular filtration rate; IV = intravenous; MAOIs = Monoamine oxidase inhibitors; NSAIDs = non-steroidal anti-inflammatory drugs; OIVI = opioid-induced ventilatory impairment; SSRIs = selective serotonin reuptake inhibitors; TCAs = tricyclic antidepressants

References

1. Schug S, Palmer, G, Scott, D, et al. Acute Pain Management: Scientific Evidence (5th edition). Melbourne: ANZCA & FPM; 2020.
2. Pain and Analgesia Expert Group. Therapeutic Guidelines: Pain and Analgesia. West Melbourne, Victoria Therapeutic Guidelines Ltd; 2021.
3. Australian and New Zealand College of Anaesthetists Faculty of Pain Medicine. Position statement on the use of slow-release opioid preparations in the treatment of acute pain. In: ANZCA; 2018.
4. Australian Medicines Handbook Pty Ltd. Australian Medicines Handbook: Opioid analgesics. Adelaide; 2021.
5. Australian and New Zealand College of Anaesthetists Faculty of Pain Medicine. Statement on principles for identifying and preventing opioid-induced ventilatory impairment (OIVI). In: ANZCA; 2018.
6. Smith HS, Smith, JM, Seidner, P. Opioid-induced nausea and vomiting. Annals of Palliative Medicine 2012; 1(2): 121–129.
7. Australian Commission on Safety and Quality in Health Care. Opioid Analgesic Stewardship in Acute Pain Clinical Care Standard. 2022.
8. Palliative Care Expert Group. Therapeutic Guidelines: Palliative Care – Pain: opioid therapy in pallaitive care West Melbourne, Victoria Therapeutic Guidelines Ltd; 2021.

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