

Optimal postoperative pain management begins in the preoperative period

Pain is subjective and each individual patient's experience of pain is different. Reasons for these differences include:

- age
- co-morbidities including chronic pain
- concurrent medication and other substance intake
- mechanisms of pain – nociceptive, neuropathic
- modifying factors e.g. mood, cognition, coping strategies
- genetics.

Conduct preoperative patient evaluation:

- Ask the patient and/or their carers to help establish pain history (consider the above).
- Document in the patient's medical record, otherwise state that there are no relevant factors.
- Discuss pain management strategies and expectations in the preoperative period.

Fig 1: Visual analogue scale

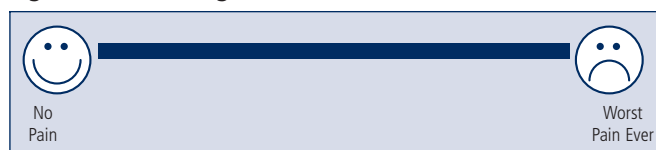
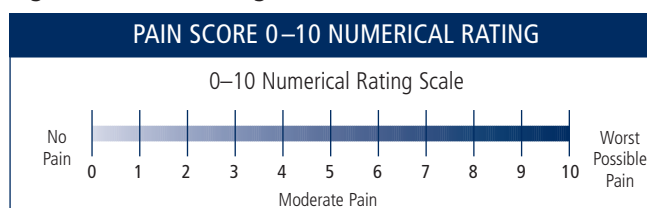


Fig 2: Numerical rating scale



Measure pain regularly using a validated pain assessment tool

Regular and routine assessment of pain will result in improved pain management.¹

- The patient's own assessment of pain is the most reliable and should be used when possible.¹
- Use a pain measurement tool appropriate to patient's mental status, age and language.
- Measure pain scores both at rest and on movement/function to assess the impact on functional activity.¹⁻³
- Re-assess pain regularly and before/after administering analgesia or other pain management strategies.
- Document pain assessment measurements as part of routine observations.

Validated pain assessment tools

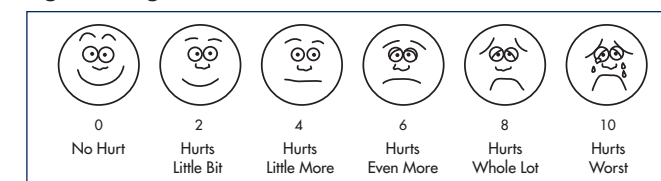
Patient measures

- Visual analogue scale (VAS; figure 1).
- Numerical rating scale (NRS; figure 2).
- Verbal descriptor scale e.g. none/mild/moderate/severe.
- Wong-Baker faces scale (figure 3).

Observer measures

- Behavioural pain scale.³

Fig 3: Wong-Baker faces scale



Wong-Baker FACES Pain Rating Scale, from Wong DL et al.: Whaley and Wong's Essentials of Pediatric Nursing, 5th edition, St. Louis, 2001, Mosby, p. 1301. <http://www.mosbysdrugconsult.com/WOW/facesReproductions.html> (accessed 31 January 2007).

Ensure all postoperative patients receive safe and effective analgesia

When prescribing analgesia

- Use a variety of approaches (**multimodal** analgesia) to improve analgesia and decrease doses of individual agents.⁴
- Paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) are valuable components of multimodal analgesia.¹
- When using analgesics on a regular basis have additional ‘prn’ medication available for breakthrough pain.
- Use individualised doses of analgesic(s) administered at appropriate dose intervals and titrate to patient response.⁴

Routes of administration:

- Use intermittent intravenous (IV) opioids to gain initial control of severe pain, as IV administration provides rapid and reliable drug absorption.¹ (Note: prescription of nurse-administered IV opioids is not recommended for ongoing analgesia on general wards.)
- Consider subcutaneous route for ongoing parenteral opioids, avoid intramuscular route (painful and less predictable absorption).¹
- Once the oral route has been established, use when possible.¹

Drug class	Considerations	Selected precautions
Paracetamol	Useful adjunctive analgesic agent Consider regular order rather than prn When combined with opioids, increases pain relief ¹ Regular (1 g every 4–6 hours) use can reduce opioid requirements by 20–30% ¹	Provide clear directions when prescribing >1 paracetamol-containing preparation Maximum 4 g daily dose usually recommended in healthy adults; reduce dose in malnourished, underweight patients Avoid in severe liver dysfunction Only prescribe IV (avoid rectal) if oral is inappropriate ¹
NSAIDs (e.g. conventional: ibuprofen, COX-2 selective: celecoxib)	Adjunctive analgesics for use with opioids and/or paracetamol ¹ Inadequate for severe pain when given alone, but can reduce opioid requirements ¹ Limit prescription to two to three days then review ⁴	Adverse effects of NSAIDs are significant; may limit use ¹ Modify dose or avoid in congestive heart failure, those at risk of renal effects (renal disease, hypovolaemia, hypotension, concurrent use of other nephrotoxic agents), the elderly Lower risk of GI bleeding or ulcers with COX-2 selective NSAIDs ¹
Tramadol	Weak opioid with serotonergic and noradrenergic effects, as effective as morphine for some types of moderate postoperative pain, less so for severe acute pain ⁵ Less risk of respiratory depression and constipation ^{1,5}	Avoid in patients with history of seizures Use with caution in severe renal impairment and the elderly Be aware of rare, but potentially serious, drug interactions with SSRIs, TCAs, pethidine, warfarin, St John’s wort
Opioids (e.g. morphine, oxycodone, fentanyl, hydromorphone, pethidine, dextropropoxyphene)	Prescribe opioid dose based on age, use lower initial dose in the elderly and titrate upwards ⁵ Be aware of potential for prescribing and administration errors with immediate and sustained-release preparations Be aware of factors that may increase risk of opioid overdose (e.g. concurrent sedatives, opioid naïve, sepsis)	Prescribing multiple opioids via multiple routes increases risk of opioid overdose and is generally not recommended Do not use morphine or pethidine in severe renal impairment ⁵ Avoid pethidine (accumulation of toxic metabolite norpethidine, drug interactions) and dextropropoxyphene (unsafe in overdose, ceiling effect)

Abbreviations: ACEI = angiotensin-converting enzyme inhibitors, NSAIDs = non-steroidal anti-inflammatory drugs, SSRIs = selective serotonin reuptake inhibitors, TCAs = tricyclic antidepressants.

Monitor and manage adverse events

Monitoring – respiratory depression and sedation (patients on opioids ± sedatives)

- Respiratory rate alone as an indicator of respiratory depression is of limited value and hypoxaemic episodes may occur in the absence of a reduced respiratory rate.¹
- Sedation scores are a more reliable indicator – respiratory depression is almost always preceded by sedation.⁶ The sedation score measures the patient’s level of wakefulness and their ability to respond appropriately to verbal command. A four-point scale³ (box 1) is recommended.

Monitoring – nausea and vomiting

- Effective antiemetics in the postoperative period include 5HT₃ antagonists, droperidol and dexamethasone.⁴
- Consider co-prescribing more than one antiemetic, each with a different mechanism of action, with instructions to add a drug from a different class if the first agent is ineffective.⁷

Monitoring for other adverse events

Regular review will reduce the risk of serious side effects developing and will allow for adjustment of doses, dosage interval and alteration of analgesics as necessary. Side effects for the following include:

- **Opioids** – constipation (consider prescribing of prophylactic laxatives), urinary retention, itch, confusion and postural hypotension.
- **NSAIDs** – GI (peptic ulceration), renal (monitor renal function e.g. in renally impaired patients, and those being treated with ACEIs, diuretics and aminoglycoside antibiotics), bronchospasm, platelet inhibition (increased blood loss).¹ Risk and severity of side effects is generally increased in the elderly.¹

Box 1: Sedation scoring

Sedation score		Suggested action
0	Awake, alert	
1	Mild sedation	Easy to rouse Continue routine monitoring
1S	Asleep	
2	Moderate sedation, easy to rouse but unable to stay awake	Consider reducing analgesic dose, increase frequency of monitoring If respiratory rate < 8 breaths per minute, withhold opioid, administer naloxone and notify medical officer
3	Difficult to rouse, unable to stay awake	Withhold opioid, administer naloxone and notify medical officer <i>Note that naloxone should be administered IV in divided doses of not greater than 100 micrograms</i>

Communicate ongoing pain management plan to both patients and primary healthcare professionals at discharge

There is evidence of gaps in discharge planning leading to significant harm.⁸

A pain management plan, as a component of discharge planning, should be clearly communicated to the patient and/or their carer, general practitioner and other community-based health professionals.

A pain management plan is essential for patients at increased risk of pain after discharge (see below). This is likely to improve the patient's post-discharge pain experience, utilisation of outpatient services and prevent surgical complications.⁹

Factors associated with increased risk of pain and/or complexity of analgesic requirements post-discharge*:

- Patient characteristics⁵ – age, debilitated, cognitive impairment, severe liver disease, renal impairment, peptic ulcer disease, chronic pain or low pain threshold, multiple admissions for pain, obstetric patients.
- Surgery types¹ – thoracic, abdominal surgery, surgery involving major disruption of muscle, bone or nervous tissue, bone grafts.
- Concurrent medicines⁵ – opioid antagonists, chronic opioids, SSRIs, monoamine oxidase inhibitors, central nervous system depressants, warfarin, St John's wort, ACEIs, diuretics.

*Consult Acute Pain Service or Pain Specialist where necessary (if available).

Management action:

- Review analgesia requirements and consider relevant risk factors 24 hours before discharge.
- If prescribing a strong opioid, consider limiting quantity prescribed.
- Prescribe drugs for symptomatic relief of side effects where necessary (e.g. antiemetics and laxatives).

Pain management plan⁸ at discharge includes:

- A list of all analgesics, with dosage and administration times.
- Instructions on anticipated/intended duration of therapy and reducing/ceasing therapy where appropriate.
- Important consumer-specific medicines information (e.g. adverse reactions including allergies, drug interactions, ceased medicines).
- For paracetamol-containing analgesics, give (written) information about safe use, including maximum daily dose of paracetamol.
- Instructions for monitoring and managing side effects.⁵
- Methods to improve function while recovering including non-pharmacological methods for relieving pain.
- Contact person for pain problems (uncontrolled or persistent pain) and other postoperative concerns (e.g. bleeding and infections).

References:

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Drug Use Evaluation project conducted by the APOP study group: Victorian Department of Human Services/Victorian Drug Usage Evaluation Group; UMORE, Tasmanian School of Pharmacy, University of Tasmania; South Australian Therapeutic Advisory Group/Department of Health; School of Pharmacy, University of Queensland; New South Wales Therapeutic Advisory Group. Funded and supported by the National Prescribing Service Limited (02 8217 8700).

For more information on the management of postoperative pain refer to ANZCA *Acute Pain Management: Scientific Evidence*, 2nd edition, 2005, and *Therapeutic Guidelines: Analgesic, Version 4*, 2002.

The information contained in this material is derived from a critical analysis of a wide range of authoritative evidence. Any treatment decisions based on this information should be made in the context of the individual clinical circumstances of each patient. Reviewed by: Dr C Roger Goucke, Dr Jane Trinca, Dr Pamela E Macintyre, Professor Stephan A Schug, Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists.