

PCA (Patient controlled analgesia) Chart (adult) EXPLANATORY NOTES

These explanatory notes are to be used in conjunction with the PCA education slides.

Target Patient Group

- The PCA chart is intended for use in ADULT patients receiving PCA for pain management.
- The PCA (adult) chart is NOT to be used for paediatric patients.

Target Education Group

- Medical officers who prescribe PCA including anaesthetists
- Nursing staff on wards and other clinical areas where patients use PCA
- Clinical pharmacists who review patient's medications and medication charts

Prescription component of the PCA Chart

The prescription section of the PCA chart is to be completed by a prescriber in accordance with the Handling of Medication in NSW Hospitals Policy PD2007_077. ¹

The PCA prescription is valid for a maximum of 4 days unless ceased earlier.

Prescriber to complete the patient allergy and adverse drug reaction (ADR) section in full. Patient identification details to be either handwritten or a patient label affixed (first prescriber to check patient label is correct).

Medical referral to the Pain Service:

- This section to be completed to comply with Medicare requirements for private patients
- Each hospital will have their own processes for the review of patients by their Acute Pain Service (or equivalent medical officer where a pain service does not exist)

The PCA prescription:

- Route, primary drug, amount (in mg or microgram)
- Space for an additional drug and dose if required
- Total volume
- Date
- Space for prescriber's signature & printed name
- Space for pharmacy annotation

If changing from one opioid to another, a new PCA chart must be commenced.

The PCA program: Parameters for programming the PCA pump

- Date, time, primary drug and concentration (mg or microgram per mL) e.g. morphine 1mg per mL
- PCA bolus dose (mg or microgram) documented in unit of drug and volume e.g. 1mg = 1mL
- Lockout interval (minutes)
- Background infusion (mg or microgram per hour) e.g. 1mg = 1mL per hour
- Space for the prescriber's signature and printed name

Two further rows are provided for subsequent changes to the PCA program.

Neuraxial opioid: for those patients who have received a neuraxial opioid and who will also use a PCA.

- The doctor who has administered the neuraxial opioid (not fentanyl) determines the frequency of observations for the first 6 or 12 hours (depending on age or frailty of patient, e.g. a young woman post-partum may have observations attended hourly for 6 hours, an elderly patient post orthopaedic procedure may have observations hourly for 12 hours)
- Space is provided to record the date, time, drug administered and dose that has been administered neuraxially (intrathecal or epidural).

Naloxone:

- The prescription incorporates a recommendation of dose and frequency for administration of naloxone where sedation score is 3 OR when sedation score is 2 and respiratory rate is less than or equal to 5 breaths per minute.
- This section is not considered a 'Standing Order' for naloxone and completion of the prescription is required prior to administration. (*See Frequently Asked Questions p.7*)
- If a facility does provide a 'Standing order' for the administration of naloxone, a 'standing order naloxone sticker' stating the naloxone standing order can be affixed over the prescription section.

Patient Controlled Analgesia Management Guidelines

Management guidelines are printed on the 'fold out' front page of the PCA chart. Users should refer to their own hospital's PCA policy or procedure for detailed information relating to PCA prescribing and management.

The Management Guidelines are summarised in point form:

- Frequency of observations
- Checking of PCA pump settings
- Authorisation administration of other opioids
- Use of dedicated PCA giving set with anti-syphon and anti-reflux capabilities
- Oxygen therapy
- Managing adverse effects including pruritus, nausea and vomiting, urinary retention and constipation
- Neuraxial opioids and PCA (morphine, liposomal morphine – extended release or HYDROMORPHONE).
Frequency of observations, maintenance of intravenous access and management of pruritus

Cessation of PCA: Refers users of the chart to the medical record for guidance on how and when the PCA is to be ceased. This section may or may not be utilised by your facility.

Contact details: for personnel responsible for the management of the patient receiving PCA during business hours and after hours may be hand written or a sticker with relevant contact details affixed.

Record of opioid syringes or bags administered and remaining drug discarded

Opioid solutions for PCA are supplied in a syringe or a bag depending on the type of PCA pump used.

In the space required, date, time and 2 signatures are legally required for the administration of PCA opioid and the total amount discarded (in mg).

Record of naloxone administered

Four rows are provided for the administration of naloxone according to the prescription or standing order sticker on the front prescription page of the chart.

PCA observations

The observations component of the PCA chart has been developed in consultation with the Clinical Excellence Commission (CEC) to incorporate the 'track and trigger' principles of the Between the Flags Program² to promote the early recognition of the deteriorating patient associated with opioid administration.

The PCA chart is intended for concurrent use with the Standardised Adult General Observation chart (SAGO) chart. It is recognised that the frequency of observations for vital signs may differ from the frequency required for patients who are receiving PCA.

The observations included in the PCA chart are those that are relevant to the needs of patients receiving PCA. Observations are presented in the same order in which an assessment of the patient with a PCA should occur.

These observations include:

- **A PAIN SCORE** which is to be determined from a pain assessment with the patient at rest and with relevant movement (such as deep breathing and coughing for a patient post laparotomy) utilising either the numerical pain scale 0 to 10 or verbal pain scale; no pain, mild pain, moderate pain, severe pain and excruciating pain.
 - Pain score at rest to be recorded with the letter 'R'
 - Pain score with movement to be recorded with the letter 'M'

- **The SEDATION SCORE** is the most sensitive indicator for clinical deterioration associated with the administration of opioids. Respiratory depression is almost always preceded by increasing sedation.³ 'track and trigger' colour codes have been incorporated to assist staff in recognising increasing sedation and prompting appropriate clinical management of the patient. The PCA chart includes the following sedation scale:³
 - **3 Difficult to rouse or unresponsive** (Red Zone for Rapid Response)
 - **2 Constantly drowsy or unable to stay awake** (Yellow Zone for Clinical Review)
 - **1 Easy to rouse**
 - **0 Wide awake**

- **RESPIRATORY RATE** is graphically recorded and incorporates 'track and trigger' Red and Yellow Zones to detect respiratory depression and prompt appropriate Clinical Review or Rapid Response.

Observations for sedation score and respiratory rate are to be recorded graphically so that trends can be monitored (tracked).

If a patient’s observations enter the Yellow or Red Zone, the instructions on the back page of the PCA chart will explain what to do. These instructions explain when to call the pain service or equivalent medical officer* for a review of the patient.

** An ‘Acute Pain Service’ may not be present in all hospitals. The ‘equivalent medical officer’ refers to the medical person nominated for overseeing patients using PCA. (This person may be an anaesthetist.)*

- **OXYGEN THERAPY** (Litres per minute) see local hospital policy or procedure relating to oxygen administration for patients who are using PCA.
- **OXYGEN DEVICE / MODE** key is provided on the front page under PCA Management Guidelines.

Oxygen Device Key	NP	Nasal prongs
	FM	Simple face mask
	NRB	Non re-breather
	VM	Venturi mask/variable concentration mask

- **NAUSEA or VOMITING** yes or no response.
- **The PCA DELIVERY** section of the form relates to the total primary PCA dose, background infusion rate per hour, total demands / attempts vs good demands / successful use of the button.
A prompt for a check of the PCA program settings is provided.

Clinical Review and Rapid Response Criteria

Instructions on the back page of the PCA form explain WHEN to make a Clinical Review or Rapid Response call. They are consistent with the ‘track and trigger’ principles of the Between the Flags Program ¹ which has been established as a ‘safety net’ in NSW Public Hospitals to reduce the risk of undetected clinical deterioration of patients and ensuring appropriate responses when needed.

All the Clinical Review Criteria are listed in the yellow box on the back page of the PCA chart. These criterion are in addition to those which are on the SAGO chart. Although the PCA observation chart incorporates a decision support tool it should not replace clinical judgement. Clinicians must assess a patient’s condition and escalate to the appropriate level, using the chart as a guide. For example, if a clinician considers that a patient requires urgent medical attention, based on their clinical judgement, even though the patient’s observations remain in the Yellow Zone, then he or she should initiate a Rapid Response call.

Clinical Review Criteria

The 'Yellow Zone' highlights the following adverse effects that require clinical review by the Acute Pain Service or the equivalent medical officer responsible for the care of patients using PCA:

- **Sedation score 2** (Constantly drowsy, unable to stay awake)
- **A respiratory rate between 6 and 10 breaths per minute**
- **New, increasing or uncontrolled pain**

IF A REVIEW BY THE ACUTE PAIN SERVICE OR EQUIVALENT MEDICAL OFFICER IS NOT POSSIBLE, CALL FOR A CLINICAL REVIEW

There may be occasions where the doctor or nurse from the acute pain service may not be able to immediately review the patient. In these situations, a clinical review must be made.

Rapid Response Criteria

The 'Red Zone' highlights the following adverse effects that require an immediate rapid response from the hospital's local escalation protocol in addition to review by the Acute Pain Service or the equivalent medical officer responsible for the care of patients using PCA:

- **Sedation score 2 and a respiratory rate less than or equal to 5 breaths per minute**
- **Sedation score 3** (patient difficult to rouse or unresponsive)

If a patient has criteria within the Red Zone there is no discretion. You must call a Rapid Response. This is because patients who have criteria within the Red Zone are likely to be seriously ill. The Acute Pain Service (or equivalent medical offer) must also be contacted.

Frequently Asked Questions

1. Why is there no space to prescribe an 'hourly or 4 hourly limit'?

Available evidence states that no benefit can be attributed to dose limits for PCA. The setting of a limit can give staff a false sense of security where they may believe that the patient cannot receive an excessive dose of a drug. The setting of a dose limit cannot compensate for any shortcomings in monitoring. Hourly or four hourly limits are also not present on all machines. ^{3, 4}

2. Why can't naloxone be a 'standing order'?

A naloxone standing order would require each hospital using PCA to write a protocol covering all issues surrounding the medication order and administration, implementation and accreditation. A standing order also requires annual review by the appropriate network/area drug and therapeutics committee. This process was considered labour intensive in contrast to a prescription that can be completed for individual patients.

Facilities may have a 'Naloxone standing order' – see your local PCA policy or procedure to confirm.

3. Why is there no space to record SaO₂ on the PCA chart?

Oxygen saturation readings may not always be a good or reliable indicator of opioid-induced respiratory depression.⁵ Care must be taken in the interpretation of SaO₂ readings as normal levels of oxygen do not necessarily exclude abnormalities. The assessment of increasing sedation is considered a more accurate indicator of impending respiratory depression.⁴ SaO₂ can be recorded on the SAGO chart.

4. Can I use this PCA chart for paediatric patients?

No. The PCA chart has been developed for use in adult patients only. Where facilities have paediatric patients, existing PCA charts must be maintained for those patients.

Relevant Policy Directives and References

1. NSW Health. Handling of Medication in NSW Hospitals Policy PD2007_077.
2. NSW Health. Recognition and Management of the Patient who is Clinically Deteriorating PD 2010_026.
3. Macintyre PE & Schug SA. (2007) *Acute Pain Management a Practical Guide*. 3rd ed. Saunders Elsevier: Edinburgh
4. Macintyre PE, Schug SA, Scott DA, Visser EJ, Walker SM; APM: SE Working Group of the Australian and New Zealand College of Anaesthetists and faculty of Pain Medicine (2010), *Acute Pain Management: Scientific Evidence* (3rd edition), ANZCA & FPM, Melbourne
5. Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine (ANZCA) Bulletin December 2009.

For further information regarding implementation of the PCA chart you can contact:

- The clinical nurse consultant /specialist/registered nurse from your Acute Pain Service or education department
- The consultant anaesthetist from your Acute Pain Service or equivalent team who manage patients with PCA
- Jenni Johnson Pain Management Network Manager Agency for Clinical Innovation
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- Emily Edmonds Project Co-ordinator Emily.edmonds@swahs.health.nsw.gov.au Ph: 9881 7649

Comments and suggestions for chart design modifications can be made using the **Feedback Register Form** and sent to:

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A process of review will be undertaken at 12 months post introduction of the charts.