Subject: Management of Patient Controlled Analgesia

Area: Pain Management

Classification: Clinical Practice

Relevant to: All Nursing Staff, Medical Staff, the Acute Pain Service

Implementation Date: April 2000

Review Date: April 2003

Responsible for Review: Clinical Practice Committee

Approved by: Executive Director

Distribution: All Clinical Units

Location: Clinical Practice Manual

13 OUTCOME

1.1 Patients receiving Patient Controlled Analgesia (PCA) will receive optimal management of their pain.

13.2 The potential development of complications associated with PCA will be minimised.

1 POLICY

2.1 All patients whose treatment indicates the need for PCA and who provide informed consent, will have PCA managed in a safe and effective manner by a Registered Nurse (RN) accredited in PCA management.

2.2 Aseptic technique and Standard precautions must be adhered to during the management of PCA.

2.3 The RN caring for a patient receiving PCA will recognise any deterioration in patient parameters and implement prompt corrective action, including notifying the Acute Pain Service (APS).

13.2 Naloxone (Narcan®) 0.4mg ampoule must be available on the ward/unit whilst any patient is receiving PCA.
13.3 Blood products are not to be administered via the same intravenous (IV) cannula as the PCA. If poor vascular access prevents the use of two IV cannulas, the PCA is to be stopped for the duration of the blood transfusion. Under these circumstances, the attending anaesthetist or APS may prescribe alternative analgesia until the PCA can be recommenced.

2.6 The patient receiving PCA will receive no other S8 or S4D drugs whilst PCA is in progress unless ordered by the APS.

2.7 The PCA pump key is to be kept with the Dangerous Drug keys at all times. The loss of a PCA pump key constitutes an incident. A Patient Incident Form must be completed in the event of key loss.

2.8 The patient is the only person allowed to press the bolus dose button. A warning sign will be displayed on the PCA machine, e.g. “PCA – Patient only to press the button”.

2.9 Only members of the APS and RNs accredited in PCA pump programming will perform programming and reprogramming of PCA pumps.

13.4 Accreditation of RNs in pump programming is the responsibility of the Nursing Unit Manager.

2.11 It is the role of the Clinical Nurse Consultant (CNC) and Clinical Nurse Specialist (CNS): Nutritional Support and IV Therapy, to accredit RNs for pump programming. RNs may also be accredited by the Recovery Ward Nursing Unit Manager and Clinical Nurse Specialists.

14 SCOPE OF POLICY

3.1 This policy covers the indications for PCA and the responsibilities of RNs and the APS in the management of patients receiving PCA.

4.0 DEFINITIONS

4.1 PCA systems incorporate microprocessor-driven syringe pumps that, within preset limits, will deliver a bolus dose of an opioid when the patient presses a demand button connected to the pump. Certain variables are prescribed and programmed into the PCA machine which control how much opioid the patient can receive (Macintyre & Ready, 1996).

13.2 An RN accredited in PCA management is one who has:

   Been accredited by the Division of Nursing in IV medication administration
Attended a workshop on the management of PCA
Successfully completed a PCA assessment package within the timeframe outlined in the package.

13.3 Unless otherwise indicated, Registered Nurses (RNs) referred to in this policy are RNs accredited in PCA management as per point 4.2.

13.4 The Acute Pain Service (APS) is the team responsible for the management of patients receiving Patient Controlled Analgesia and patients receiving epidural analgesia. The team is comprised of the Director of Anaesthetics, the anaesthetic registrar and the Clinical Nurse Consultant Nutritional Support and IV Therapy (CNC NS and IVT). After hours the anaesthetic registrar on call (page 6892) assumes the role of the APS.

13.5 An RN accredited in PCA pump programming is one who:

- Works in the Recovery Ward, Anaesthetic Department or Intensive Therapy Unit
- Has attended an inservice on PCA pump programming conducted by the CNC NS and IVT
- Has demonstrated competency in PCA pump programming.

5.0 INDICATIONS FOR PCA

5.1 Analgesia after various types of surgery, including orthopaedic, gastrointestinal, thoracic, urological and gynaecological.

5.2 Analgesia after trauma, particularly thoracic and orthopaedic trauma.

6.0 CONTRAINDICATIONS TO PCA

6.1 Patients who are unable to understand the technique, e.g. language barrier, confusion.

6.2 Patients who are unable to physically utilise the PCA button.

7.0 PCA MANAGEMENT

13.2 The APS will review all patients receiving PCA daily. The APS will assess the patient’s level of comfort, provide patient education, review the management of any complications, check the PCA pump program and rewrite PCA prescriptions as required.

7.2 PCA syringes are to be changed at least every 24 hours. RNs must ensure that they refer to the correct procedure when changing the PCA syringe as there are two different PCA pumps available at St Vincent’s Hospital (NP/Proc/P1.1 and NP/Proc/P1.2).
7.3 PCA is to be administered via a PCA administration set that has a back-check and anti-siphon valve. The backcheck valve prevents the opioid inadvertently refluxing into the maintenance IV therapy line. Maintenance or to keep the vein open (TKVO) IV therapy will be ‘piggy-backed’ onto the PCA administration set.

7.4 The discard of a syringe containing opioid solution is to be attended by two RNs, one of whom must be accredited in PCA management. The two RNs will witness the discard of the remaining solution, record the volume discarded and sign their names in the space provided on the Patient Controlled Analgesia Chart (P433).

7.5 PCA syringe changes will be performed by two RNs, one of whom must be accredited in PCA management.

13.2 The patient receiving PCA is to be provided with a Visual Analogue Scale (VAS). This should be attached to the PCA pump when the pump is supplied from the Recovery Ward and is to be kept with the PCA pump at all times.

8.0 PCA PRESCRIPTIONS

8.1 PCA prescriptions are valid for 48 hours. A separate prescription is not required for each syringe loaded.

8.2 The APS or the ITU/ACCA Registrar will rewrite PCA prescriptions every 48 hours.

8.3 Only the APS, the attending anaesthetist, ITU/ACCA Registrars and Consultants are authorised to change PCA prescriptions.

13.2 PCA prescriptions will be written on the designated section on the Patient Controlled Analgesia Chart (P433).

13.3 The APS will prescribe a PRN antiemetic at the time of PCA commencement, unless otherwise indicated.

9.0 ASSESSMENT AND OBSERVATION OF THE PATIENT RECEIVING PCA

9.1 The RN will check the PCA program:

Upon the patient’s return from the Recovery Ward
At change of shift
Upon changing the syringe
Upon transfer of the patient to another ward or unit
13.2 Upon the commencement of PCA, the following observations are to be attended and recorded on the Patient Controlled Analgesia Chart (P433) hourly for the first six hours, then, if stable, second hourly for the next 18 hours and then, if stable, fourth hourly thereafter:

- Cumulative total
- Total number of tries
- Number of good tries
- Assessment of level of patient sedation (see Table 1)
- Pain score assessment (Figure 1 provides a flow chart to ascertain the patient’s pain score. Table 2 provides a description of nursing interventions required based on the pain score found in Figure 1)
- Visual analogue scale assessment (need not be attended if the patient is sleeping) * See page 6
- Respiratory rate

13.3 The observations outlined in point 9.2 will be recorded more frequently if clinically indicated.

9.4 The RN will promptly recognise any deterioration in patient observations outlined in point 9.2, and implement prompt corrective action, including notifying the APS.

13.2 The RN will check the IV cannula site patency and integrity every shift and PRN.

Table 1 Assessment of Level of Patient Sedation

<table>
<thead>
<tr>
<th>Sedation Score</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Patient is awake</td>
</tr>
<tr>
<td>1</td>
<td>Patient is asleep</td>
</tr>
<tr>
<td>0</td>
<td>Patient is difficult to arouse or confused</td>
</tr>
</tbody>
</table>
Figure 1: Pain Score Assessment

Table 2 Patient Management Based on Pain Score Assessment

<table>
<thead>
<tr>
<th>Pain Score</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Allow the patient to continue sleeping.</td>
</tr>
<tr>
<td>0</td>
<td>Ensure that the patient is performing deep breathing, coughing and active limb exercises.</td>
</tr>
<tr>
<td>1</td>
<td>Ensure that the patient is able to regularly perform deep breathing, coughing and active limb exercises. If not, reinforce the correct use of PCA including encouraging the patient to use PCA prior to performing these exercises.</td>
</tr>
</tbody>
</table>
| 2          | a) Before contacting the APS ensure that:  
  - The cannula is patent  
  - The PCA is connected  
  - The patient is able to use the PCA button correctly  
  - The patient understands the principles of PCA |
The pump is delivering the programmed dose of opioid
PCA tubing is patent and free of kinks
b) If any of the above is identified, implement prompt corrective measures. Then reassess pain score. If pain score is still ‘2’, contact APS.
c) If none of the above is identified, contact APS without delay.
* In the event of the APS being contacted, the APS will assess both the patient and the PCA pump program and prescribe appropriate ongoing treatment.

*Visual Analogue Scale (VAS) Assessment
This need not be done if the patient is asleep. After the patient has performed a painful activity, e.g. coughing or moving, show the patient the VAS on the PCA pump and ask the patient to indicate the number that corresponds to their level of pain.

**10.0 MANAGEMENT OF COMPLICATIONS**

13.2 The RN will promptly recognise the development of any complication and implement corrective action as per the following table:

<table>
<thead>
<tr>
<th>Complication</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory rate 10 or less</td>
<td>Remove button from patient’s reach, observe patient. Ensure Naloxone (Narcan®) at bedside.</td>
</tr>
<tr>
<td>Respiratory rate 8 or less and/or sedation score of ‘0’</td>
<td>Remove button from patient’s reach, administer oxygen therapy at 12 L/min by mask, call APS urgently. Ensure Naloxone (Narcan®) at bedside.</td>
</tr>
<tr>
<td>Pain score of ‘2’</td>
<td>See Table 2</td>
</tr>
<tr>
<td>Urinary retention</td>
<td>Contact Medical Officer. Urinary catheterisation may be indicated.</td>
</tr>
<tr>
<td>Nausea and/or vomiting</td>
<td>Administer antiemetic as prescribed. If nausea and/or vomiting persist, notify APS.</td>
</tr>
<tr>
<td>Pruritis</td>
<td>Contact APS. An antihistamine may be prescribed.</td>
</tr>
</tbody>
</table>

10.2 If in the event of the development of a change in patient condition or complication/s the APS is contacted, the APS will assess both the patient and the PCA pump program and prescribe appropriate ongoing treatment.

**11.0 EDUCATION OF PATIENTS**

11.1 All patients receiving PCA are to be educated prior to the commencement of PCA by the attending anaesthetist during the preoperative visit or by a member of the APS.
13.2 RNs may reinforce the principles of PCA, following the initial education provided as per 12.1.

11.3 Patients are to be provided with the patient education pamphlet titled ‘Patient Controlled Analgesia’.

**12.0 CARE OF PCA PUMPS**

12.1 Clean the PCA pump with a damp cloth daily while the pump is switched off.

12.2 Keep the PCA pump plugged into the AC power whenever possible to ensure adequate battery life.

13.2 On completion of PCA, clean the PCA pump and return it promptly, along with the power cord, PCA button and PCA signs, to the Recovery Ward promptly.

13.3 If there is a fault with a PCA pump notify the APS. The APS will check the PCA pump and replace it with another one from the Recovery Ward, if required.

13.4 A faulty PCA pump is to be returned to and return the Recovery Ward by ward/unit staff with a note to indicate the nature of the fault.

**13.0 RESOURCES**

13.1 Between 0730 – 1600 hours the APS can be contacted via the CNC NS and IVT (page 6154).

13.2 After hours instead of contacting the APS, contact the anaesthetic registrar on call (page 6892).

13.3 PCA pumps are stored in the Recovery Ward.

**14.0 DOCUMENTATION**

14.1 PCA observations will be documented on the Patient Controlled Analgesia chart (P433).

14.2 Document any complications associated with PCA, interventions and outcomes in the Progress Notes (B60/N30/P200).

**15.0 CROSS REFERENCES**

St Vincent’s Hospital Sydney, (2000), Clinical Practice Manual:

Changing PCA Syringe (Vertically Mounted PCA Device), CP/Proc/P1.2

Changing PCA Syringe (Graseby 3300 PCA Device), CP/Proc/P1.1
16.0 REFERENCES


NSW Health Dept. (1999), _Standard Precautions Infection Control Policy _99/87

17.0 ENDORSED BY

Director of Anaesthetics, St. Vincent’s Hospital Sydney