SUB CUTANEOUS MORPHINE PROCEDURE AND PROTOCOL

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INTRODUCTION- SUBCUTANEOUS MORPHINE
Morphine delivered by the subcutaneous route can be a very effective method of managing post operative pain.

PCA can provide excellent analgesia, however many patients underdose themselves and use immobility to manage pain. The serum opiate level will drop during this period of non-use leading to the patient requiring increased doses when mobilising, which may contribute to the development of nausea. Elderly, anxious, depressed, and non english speaking patients are generally unsuitable for PCA.

The goal of most post operative pain management is to achieve a serum level of opiate which gives adequate analgesia, and then maintain it. This can be done with S/C morphine after either intravenous or S/C loading in recovery, (or upon switching from epidural analgesia.)

The difficult issue is to be able to predict the dose required, as too little will allow pain and too much will cause nausea or somnolence. Age and previous opiate experience will also affect the dose as will severity and extent of surgery and underlying pathology.

At RHW if a major post op gynae oncology patient is having S/C morphine as their primary opiate, it will be ordered every 4 hours. A breakthrough dose will also be provided to allow the clinicians caring for the patient to titrate up if the patients require it. The patient will have been “loaded “ first in recovery such that their regular dose is only for maintenance. Any patient requiring more that 2 breakthrough doses in a 4 hour period, should have their regular dose revised by the APRS.

The most difficult group to manage are the gynaecology group who have had less severe surgery. Too much opiate will cause them nausea, and not enough will leave them in pain. They may have a chronic pain component which, added to their surgery will incite severe pain. No two patients will have the same pain pattern. They frequently require opiate in the first 12-18 hours or more, but then their requirements drop significantly and extra doses may cause nausea.

It is recommended that this group are loaded in recovery and then receive two regular doses at 4 hourly periods, to prevent the onset of strong pain. After this time they can be managed on PRN S/C doses ordered 2 hourly. This would give the clinician the ability to manage higher pain requirements. If a patient can demonstrate coughing with no pain they could have their regular doses omitted. A pain assessment should occur prior to each dose and one hour post dose including a sedation score. This would allow the clinician to adequately follow the patient’s course of pain.

S/C morphine may incur less nausea than morphine delivered via the Intravenous route as it is absorbed more slowly. Pain management may be inadequate if a patient ‘s serum level drops due to patient refusal if they are dubious about taking opiates. The goal is to have a patient who scores less than 5/10 for pain when coughing.
1. **STANDARD**

<table>
<thead>
<tr>
<th>Skill level: Registered Nurse</th>
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<tbody>
<tr>
<td>1. A Registered Nurse witnessed by another Registered Nurse can check and administer legally prescribed subcutaneous morphine for the management of pain.</td>
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<tr>
<td>♦ See the medication section of the RHW manual for the handling and prescribing of medications and the responsibilities of the Registered Nurse and for Schedule 8 medications.</td>
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<td>2. All palliative care patients should have their analgesia ordered regularly.</td>
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<td>3. If on opiate pre-operatively the equivalent dose should be calculated as a Subcutaneous morphine dose and factored as a baseline opiate before the post operative prescription is calculated and prescribed.</td>
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<tr>
<td>4. Analgesia ordered regularly must be given as ordered unless contraindicated (see contraindications point 10, in this protocol)</td>
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<tr>
<td>5. The patient must be offered analgesia during their post operative observations, when it is ordered PRN. At that time, the patient must be educated, that immobilization as a form of pain management can result in significant adverse outcomes (ie, DVT or Chest infections), and reminded to ask for analgesia if it is ordered “PRN”. They should be able to cough without significant pain.</td>
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2. **OUTCOME**

Patients will have their pain effectively managed with subcutaneous morphine via a cannula, with provision for the management and prevention of side effects and potential complications.

3. **RATIONALE**

Subcutaneous injection (injection into the fatty layer just beneath the skin) may be used instead of intra-muscular injections for repeated administration of analgesics. With sterile precautions a needle or cannula can be left in situ. This technique minimizes the frequency of skin penetration for the patient and reduces the incidence of potential needle stick injuries for the staff. Morphine and hydromorphone are the drugs of choice. This mode of analgesia acts as a slow release in most patients due to morphine’s pharmacodynamics.

4. **CATEGORIES OF PATIENTS**

Patients with post-operative or other form of acute pain
Oncology and palliative care patients.
Chronic non-malignant pain patients.
Nil by mouth
Unable to take oral analgesia because of intractable nausea and vomiting.
Unconscious palliative care patients who have been taking oral morphine.
5. INSERTION CONSIDERATIONS

Recommended sites for administration:
Lateral aspect of upper arm.
Anterior and lateral aspect of thigh.
Lower anterior abdominal wall.

Optimally these should be inserted in OT before the patient wakes up.

♦ Do not insert Needle/cannula where there is altered skin integrity, abrasions, rashes, lesions bruising or infection.
♦ Avoid subcutaneous administration in patients with poor peripheral perfusion because there may be poor drug absorption.
♦ Rotate sites used for continuous or intermittent injections of morphine every forty-eight (48) hours, or more frequently if there are any signs of redness or lumps over the needle site.
♦ Specific subcutaneous cannulae may be left in for 5-7 days, however these must be observed each shift for signs of infection and pain.
♦ To avoid any discrepancies of concentrations of solution or flushing, the subcutaneous cannula should be flushed with 0.4-1.0mls of normal saline after each dose.
♦ The date and time of insertion should be present on the opsite securing the cannula.

6. POLICY and MEDICAL ORDER

The pain score and any current side effects of the narcotic, including sedation score and respiratory rate, must be documented and managed prior to dose administration. See Naloxone and antiemetic protocol.

The medical order should be based on the patient’s

♦ Age
♦ Opioid tolerance
♦ Level of pain severity (type of surgery)

In adults patient age rather than weight has been shown to be a better predictor of opioid requirements (level III; Macintyre & Jarvis)

Suggested starting doses for SC morphine in adults for 3-4 hourly
The number of doses to be given should always be specified. This promotes appropriate review time.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dose Range</th>
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<tbody>
<tr>
<td>20-39yrs</td>
<td>5.0-12.5mg</td>
</tr>
<tr>
<td>40-59yrs</td>
<td>5.0-10.0mg</td>
</tr>
<tr>
<td>60-69yrs</td>
<td>2.5-7.5mg</td>
</tr>
<tr>
<td>70-85yrs</td>
<td>2.5-5.0mg</td>
</tr>
<tr>
<td>&gt;85yrs</td>
<td>2.0-3.0mg</td>
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SUB CUTANEOUS MORPHINE PROCEDURE AND PROTOCOL  cont’d

OBSTETRIC Patients

Obstetric patients should be ordered PRN doses 3-6th hourly (5-10mg-is a good starting dose but will often need to be reduced in 24 hours post caeser).

These patient’s should not be routinely ordered regular opiates unless it is anticipated they will have high opiate requirements. PRN appears to be more suitable and cause less sedation for when they are up and attending the newborn. Call the APRS if pain persists with a PRN regimen

ONCOLOGY and GYANECHOLOGY Patients

The order should be broken into 4 hourly regular doses for non Obstetric patients with a break through order for strong pain 2nd hourly in the early post operative phase.

If patients refuse their regular Subcutaneous Morphine order it must be documented in the medication chart and explained in the patient's notes.

If the patient refuses more than 2 doses of regular opiate and is able to cough, roll and sit or walk with out significant discomfort, the regular opiate may be ceased and the patient should subsequently receive PRN opiate if required.

SEE BREAKTHROUGH PAIN ORDERS PROTOCOL

If the patient meets the criteria to proceed with the administration of the opiate the following procedure can occur.

7. PROCEDURE - NURSING ACTION

♦ Step 1.  
PAIN ASSESSMENT

♦ Step 2  
INSERTION OF THE SUBCUTANEOUS NEEDLE AND FIRST INJECTION

Equipment

* 22G Cannula  
* Blunt drawing up needles eg. 18 G x 2.  
* Syringes 2 ml x 2.  
* Alcohol swab.  
* Ordered morphine dose and Normal Saline.  
* Small semipermeable transparent dressing, eg. OpSite 6 x 8.5 cm.  
* Non-injectable cannula cap.  
* Kidney dish.
SUB CUTANEOUS MORPHINE PROCEDURE AND PROTOCOL  cont’d

Procedure
- Carry out applicable general preparation for the administration of injected medication, such as drug calculations, patient checks and Schedule drug checking and recording, with the appropriate staff.
- Aseptically assemble needle and syringe and draw up 1ml of Normal saline.
- Prime the cannula/infusion set with Normal saline.
- Choose a suitable site for insertion.
- Clean the region thoroughly with alcohol and allow to dry.
- Wash hands.
- Insert needle at an angle which will deposit medication well into subcutaneous tissue.
- Cover cannula/infusion set and one loop of tubing with the transparent dressing, leaving some tube outside for easy access, which may need securing with tape.
- Remove needle from syringe of morphine, connect to winged infusion set or cannula, and inject slowly. The slower the rate of injection the less discomfort the patient experiences. One or two minutes is the appropriate time.
- Flush the morphine in with 0.4-1.0 mls of Normal Saline.
- Terminate encounter suitably ie wash hands, document medication, perform patient assessment.

♦ Step 3.

REPEATED INJECTION VIA SUBCUTANEOUS CANNULA
Subsequent injections should involve

Equipment
- Syringe 2 ml x 2.
- Drawing up needle x 2.
- Medication order.
- Morphine 10mg/ml
- Normal Saline
- Sterile cannula cap if necessary

Procedure
- Assess cannula site.
- Check out medication against order.
- Two Registered Nurses must follow RHW Hospital policy for responsibilities and handling of medications including S8.
- Aseptically assemble needle and syringe and draw up correct dose of medication.
- Do not dilute.
- Remove needle from syringe of prepared medication, connect syringe to cannula/infusion set and inject slowly.
- Flush with 0.4-1.0 mls of normal saline.
- Recap infusion cannula with sterile cap.
- Terminate encounter.

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SPECIAL CIRCUMSTANCES
If at any time a cannula is not flushed with normal saline after morphine or other medication has been injected in the cannula,
1. The opsite securing the cannula should be labeled as;
   Medication insitu,
2. The medication and dose left insitu recorded on the patient’s pain observation chart …with each dose.

8. OBSERVATIONS

“A decrease in respiratory rate has been found to be a late and unreliable clinical indicator of respiratory depression. SEDATION – is a better indicator and should be monitored using a sedation score “

(p27 Acute Pain management – The Scientific Evidence)

Patients who are UNROUSABLE = SEDATION SCORE 3

- This is a code blue situation
- should be closely monitored,
- Do Not Give Dose of Opiate
- assessed urgently by the APRS/RMO-

Patients who have a sedation score of
2 = SEDATED AND DIFFICULT TO ROUSE
should not receive further opiate. the APRS must be contacted.

The patient should be observed hourly for BP, HR, RR, Oxygen saturations. Any deterioration should incur increased level of observation and appropriate monitoring.

- Patients who are receiving regular subcutaneous morphine must have Oxygen 2ltrs by nasal prongs or equivalent for the first post operative night, unless specific otherwise by the prescribing anaesthetist.
- Endo-gynaecology patients may be assessed by the ward’s staff and if requesting to remove the nasal prongs the APRS or Anaesthetist can be contacted to cease the Oxygen.
- Patients receiving subcutaneous morphine should have a set of respiratory rate, sedation, and pain observations attended immediately prior to the dose administration.
- Another set of the same observations should occur 60 minutes after any dose is given in order to ensure the pain is relieved.
- If the dose given was a breakthrough dose the patient should have a pain sedation and respiratory rate observed at 30 minutes post dose and again at 1 hour post dose
9. SIDE EFFECTS

♦ NAUSEA and PRURITUS
Patients should be asked about nausea and pruritus prior to the administration of any dose of narcotic and the pain chart should be updated on their status. Anti pruritic and antiemetic medications should be ordered. The Acute Pain Relief Service or the RMO can be contacted to order these medications.

♦ BLADDER FUNCTION
Many patients receiving opiates may suffer from urinary retention. Documentation on the pain chart each 8 hours should reflect a urine output the absence of which should promote further investigation and management.

♦ CONSTIPATION
As narcotics cause constipation documentation on the pain chart should reflect bowel function and checked each 8 hours to indicate if intervention is required.

10. CONTRA INDICATIONS

♦ The dose should be omitted if the patient states they prefer not to have it, due to minimal pain.
♦ If they are having a reaction to the medication such as rash, or hallucinations.
♦ If they find the nausea too unpleasant despite at least 2 types of antiemetic being delivered- in which case the APRS should be called and a new mode of analgesia ordered.

11. COMPLICATIONS

♦ Oversedation See Naloxone protocol
♦ Respiratory depression - See Naloxone protocol
### REFERENCES

<table>
<thead>
<tr>
<th>Reference</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NSW Health Department, Circular 95/37, Guidelines for the Handling of Medications in New South Wales Public Hospitals, May 1995</td>
<td>Level 3A1</td>
</tr>
<tr>
<td>2. NSW Health Department Circular 98/99, Policy and Guidelines for the Administration of Intravenous Medication in NSW Public Health Care Facilities and Community Health Services, November 1998.</td>
<td>Level 3A1</td>
</tr>
<tr>
<td>7. Consensus recommendations: The Pain Management Unit and Palliative Care Department, The Prince Henry and Prince of Wales Hospitals.</td>
<td>Level 1C</td>
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