INTERDISCIPLINARY CLINICAL MANUAL

Policy and Procedure

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**POLICY**

1. To manage the care of a patient receiving Patient Controlled Analgesia (PCA), the Registered Nurse is to meet the competency requirements as outlined in this policy and the associated learning module.

   1.1. The Registered Nurse is also required to be deemed competent in the Post Entry-Level Competency *Direct IV Administration of Medication* (MM 30-005) and knowledgeable in the IV administration of Naloxone.

2. When orders for PCA are provided by the Acute Pain Service (APS) no supplemental opioids, nonsteroidal antinflammatories (NSAIDS) or sedatives are to be administered before consultation with APS.

   2.1. It is acceptable for an RN to receive telephone orders from the APS physician, to initiate, discontinue or change PCA settings. (Refer to *Medication Orders* policy, MM 15-003)

3. Naloxone must be readily available while a patient is receiving PCA therapy.

4. All PCA opioid cassettes obtained by nursing are to be handled as per *Narcotics and Controlled Drugs* (MM 35-001).

5. The PCA opioid cassette and tubing is to be changed every 96 hours.

6. Two Registered Nurses are to verify the PCA pump program with the PCA pre-printed physician orders and documented on the PCA flow sheet (Refer to procedure).

   6.1. When PCA therapy is initiated
6.2. When PCA settings are changed

6.3. At the beginning of each shift

7. The Registered Nurse is to follow patient PCA orders as indicated on the PCA pre-printed physician order form.

8. The PCA pump key is to be maintained as per hospital policy for narcotic keys.

9. The PCA button is strictly for patient use only.

**DEFINITIONS**

**Patient Controlled Analgesia (PCA):** PCA is a delivery system with which patients self administer prescribed doses of opioids by means of a programmable pump. PCA allows the physician to customize an analgesic regimen specific to each patient’s needs.

**Clinical Care Area (CCA):** A customized library of drugs, concentrations, dosing units and dosing limits to meet the needs of a specific user group. CDHA has three PCA CCA’s: Standard, Custom and DGH.

**Delivery Mode Settings:**

- **PCA Mode:** therapy characterized by bolus doses administered on patient demand via PCA infusion pump.
- **PCA + Continuous:** the PCA infusion pump delivers a prescribed continuous basal rate and also permits bolus doses administered on patient demand.
- **Continuous mode:** The PCA infusion pump delivers a prescribed continuous basal rate but does not allow the patient to request a PCA bolus dose.

**PCA Bolus Dose:** A prescribed amount of analgesic administered on patient demand.

**Lockout Interval:** A programmed time interval specifying the minimum time that must pass after PCA bolus dose is administered.

**1-Hour or 4-Hour Dose Limit:** This value is the maximum amount of drug that can be administered via the PCA bolus dose and continuous delivery in the programmed time frame.

**Loading Dose:** An optional dose programmed, often during setup. The loading dose can be administered at any time during the programmed therapy.
PROCEDURE

Equipment
- PCA pre-printed physician orders
- **PCA infusion pump**
- PCA IV tubing, Mini –Bore with Anti-siphon Valve
- PCA cassette
- PCA flow sheet

1. Program the PCA pump as prescribed on the APS physician pre-printed order sheet for PCA.
   
   **Note:** Follow the steps to setting up the PCA pump by referring to Appendix I

2. Connect the PCA tubing directly to the I.V. insertion site or attach the tubing to a 7 inch microbore extension tubing (approximate prime volume is 0.4ml)
   
   2.1. Attach an IV infusion line to the distal “Y” site of the PCA tubing in order to maintain patency of the I.V. site.

3. Provide patient teaching on the proper use of the PCA device.

4. Provide the patient with the PCA button. If the **PCA + continuous mode** has been ordered, press start to initiate therapy.

5. Assess and document respiratory rate, somnolence score, pain level, adverse effects and cumulative dosage q2h x 24 hrs, then q4h until PCA is discontinued.

6. Document the following on the Flow sheet. (If additional space is required, document in the progress notes)
   
   6.1. PCA drug and concentration
   
   6.2. PCA dose
   
   6.3. Continuous rate (if ordered)
   
   6.4. Lockout in minutes
   
   6.5. 1 or 4 hour dose limit (if ordered)
   
   6.6. Somnolence score, respiratory rate, pain score and adverse effects
   
   6.7. Cumulative dosage
   
   6.8. Cassette change and discontinuation of PCA

7. Follow the criteria for Naloxone administration as outlined on the pre-printed order form for all patients receiving PCA.
   
   **Note:** When administering IV Naloxone, follow Capital Health IV Monograph for Naloxone.

8. Transcribe the PCA drug information to the Medication Administration Record and flag with - "See PCA flow sheet"
9. **Surgery**

9.1. Notify APS if patient is scheduled for surgery.

9.2. Disconnect PCA pumps on the nursing unit just before the patient goes to the operating room.

9.3. Dispose of any unused opioid as per *Narcotics and Controlled Drugs* (MM 35-001).

10. **Transfer**

10.1. Notify APS if a patient is to be transferred to an alternate site while receiving PCA therapy.

10.2. If transporting patients to outpatient areas, use the Transfer of Accountability guidelines/form. {Refer to CH 30-060 *Transfer of Health Information (Transfer of Accountability)*}.

10.3. If a patient with a PCA is scheduled for transfer to another Capital Health site, notify APS and follow CH 30-060 *Transfer of Health Information* - Appendix C.

11. **Discontinuation of PCA**

11.1. When PCA is discontinued by the APS and APS signs off, all APS orders are discontinued. Contact the surgical service for pain and side effect management.

**REFERENCES**


**RELATED DOCUMENTS**

**Policies**
CH 30-060  Transfer of Health Information (Transfer of Accountability)
MM 15-003  Medication Orders
MM 30-005  Direct IV Administration of Medication
MM 35-001  Narcotics and Controlled Drugs

**Forms**
CD0536MR  Patient Controlled Analgesia Flowsheet
PPO 0128MR  Acute Pain Service Patient Controlled Analgesia *(Capital Health)*
PPO 0012MR  Acute Pain Service Patient Controlled Analgesia *(Dartmouth General Hospital)*

**Patient Brochures**
QV85-0639  Patient Controlled Analgesia (PCA) patient teaching pamphlet

**Appendices**
[Appendix A](#) - Steps to ‘Set Up’ the Hospira LifeCare PCA Pump

**Other**
CDHA IV Drug Monograph - Naloxone

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Appendix A

Steps to ‘Set Up’ the Hospira LifeCare PCA Pump

1. Unlock door and press the ON button or load drug cassette into the cradle to power on the PCA pump. Ensure the bar code on the PCA cassette is positioned by the PCA bar code reader.
2. Upon initial start-up, a self test will occur. When self test complete, press CONTINUE to advance to next screen.
3. Select YES or NO at the New Patient screen. If the PCA has been off for more than 4 hours history and settings are automatically cleared and the New Patient Screen does not appear.
   a. If NO is selected, the history and RX settings are kept
   b. If YES is selected, the history and RX are cleared. A screen appears to confirm that history was cleared.
4. The drug and concentration that was read by the barcode will appear. Select CONFIRM to accept the PCA drug, or remove vial if it is not correct.
5. If check injector placement prompt appears, ensure that cassette is secured in the infuser. You will hear the cassette “click” in place.
6. Select CCA.
7. Press the softkey next to the desired CCA: Standard, Custom or DGH
   a. Select either YES or NO to purge the system
   b. If YES is selected, disconnect the set from the patient, and press and hold the PURGE softkey, While purging is occurring, the word “PURGING” is displayed
8. Upon release of the PURGE softkey, the display screen asks if the purge is complete Press YES to continue or NO to purge again until complete
9. Set loading dose Select NO for set no loading dose
10. Select Delivery Mode 3 choices
    a. PCA Only
    b. PCA + Continuous (must select Custom CCA to use this delivery mode)
    c. Continuous (must select Custom CCA to use this delivery mode)

PCA Only:

Enter the desired PCA dose using the numeric keypad, then press ENTER
Enter a lockout interval value using the numeric keypad, and then press ENTER
Set a specific dose limit
- YES and advance to the Dose limit screen, using the numeric keypad enter the dose limit value, and then press ENTER.
- NO dose limit. If no dose limit is selected, you will be prompted to CONFIRM verifying the no dose limit selection

The prescribed settings will be displayed on the screen select CONFIRM to verify or PREVIOUS to return to preceding screen

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Close and lock the door. After locking the door the PCA dose is available for infusion.

**PCA + Continuous:** Must select Custom CCA to use this delivery mode

From the Select Delivery Mode screen, select PCA + Continuous

Enter PCA dose using the numeric keypad, then press ENTER

Enter a lockout interval value using the numeric keypad then press ENTER

Enter continuous rate using numeric keypad, and then press ENTER

Set a specific dose limit

- YES and advance to the Dose limit screen, using the numeric keypad enter the dose limit value, and then press ENTER.
- NO dose limit. If no dose limit is selected, you will be prompted to CONFIRM, verifying the no dose limit selection

The settings will be displayed on the screen select CONFIRM to verify settings or select PREVIOUS to return to the preceding screen.

Close and lock door.

Press start to begin therapy. When a continuous infusion is used you must press start to begin therapy.

**Reviewing the Current Settings**

- Press the HISTORY button twice.
- Press EXIT to return to main menu. OR, select PREVIOUS to return to the preceding display.

**Making Changes after Setup:**

- Unlock the door while the infuser is running. The infuser will be paused.
- Select CHANGE Rx to change individual settings.
- Select desired field to change or select NEXT to display more options.
- Make the desired changes, then press ENTER
- Press SAVE and EXIT
- Select CONFIRM to accept the new program.
- Close and lock door.

**Changing the Cassette:**

- Unlock the door, using the PCA key

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- Close the slide clamp on the PCA administration set. Unlock door
- Remove the old cassette by firmly grasping the glass cassette vial on both sides and pulling straight out.
- Squeeze cradle release mechanism together and move to the uppermost position.
- Load new cassette. Ensure the bar code on the PCA cassette is positioned by the PCA bar code reader
- Verify cassette and review the parameters. If all is correct, select CONFIRM
- Close and lock door to begin
- Unclamp slide clamp

TROUBLESHOOTING

Occlusion alarm

This alarm will sound if the slide clamp is closed. (It is also possible, although not as common, for this alarm to sound if the IV tubing is kinked or occluded or if the venipuncture device is occluded).

When this alarm sounds, do not open the slide clamp. The PCA tubing has the potential to expand before the occlusion alarm will sound. If the slide clamp is opened a bolus opioid dose will be delivered to the patient. The amount delivered to the patient in the accidental bolus dose cannot be determined by the PCA pump.

If the occlusion alarm sounds the correct procedure is:
- Leave the slide clamp closed
- Open the PCA infuser door
- Relieve back-pressure by squeezing and releasing black cradle release handles
- Identify and correct cause of occlusion (i.e., open slide clamp)
- Close the PCA infuser door

Bar Code Not Read
Position cassette correctly
Clean bar code reader

Low Battery
Battery life has less than thirty minutes remaining and is currently operating on battery power