**TITLE:** CADD Ambulatory Infusion Pump, Care of a Patient Receiving Medication Via a
**NUMBER:** CC 80-011

<table>
<thead>
<tr>
<th>Effective Date:</th>
<th>January 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies To:</td>
<td>Holders of Interdisciplinary Clinical Manual</td>
</tr>
</tbody>
</table>

**POLICY**

*There are different models of CADD pumps that have different delivery modes. This policy refers specifically to the CADD Legacy PCA Infusion pump used in palliative care.*

1. Care of a patient receiving medication via the Computerized Ambulatory Drug Delivery (CADD) pump may be carried out by Registered Nurses in the hospital or community upon receiving education on the specific model of the CADD pump to be used in their area of practice.

2. Continuous infusion of medications via a CADD Pump requires a physician’s orders and is to include:
   - 2.1 Drug concentration
   - 2.2 Dosage of drug to be given
   - 2.3 Infusion rate (mg/hour)
   - 2.4 Bolus dose
   - 2.5 Frequency of bolus dose
   - 2.6 Route

**GUIDING PRINCIPLES**

1. Two or more drugs can be mixed in the same cassette as long as they are compatible. When in doubt about compatibilities, call pharmacy, or check [www.palliativedrugs.com](http://www.palliativedrugs.com).

2. Indications for use of the CADD pump at Capital Health:
   - 2.1 Subcutaneous, intravenous (peripheral or central), epidural, or intrathecal infusion.
   - 2.2 Therapies that require a continuous rate of infusion, patient-controlled demand doses, or both.

3. Benefits for use:

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Continuous Infusion:
3.1 Better symptom management and less sleep disturbance for the patient when continuous or large doses of medications are required to control symptoms.
3.2 An alternate route of administration for medications when the patient is unable to swallow, or a bowel obstruction is present, etc. (i.e. NPO)
3.3 Less intermittent and less frequent subcutaneous doses by the nursing staff or family are needed to provide symptom relief.
3.4 Patient comfort is more easily achieved, compared to intermittent dosing, resulting in patients and families feeling less stressed and more comfortable.

Ease of Ambulation:
3.5 Enables the patient to manage their symptoms safely in both the hospital and home setting.
3.6 Device is lightweight and can be carried in a pouch, allowing the patient to remain ambulatory.

4. Priming the pump subtracts priming volume from RES VOL but does not enter it as an amount the patient has received.

PROCEDURE

Equipment
- CADD Extension Set with Anti-Siphon Valve
- 0.22 Micron Epidural Flat Filter (*for use with Intrathecal infusions only)
- CADD Pump
- Batteries (Refer to operator’s manual for specific type and size)
- Cassette with prescribed medication

1. General
1.1. Refer to specific policy & procedure for the ordered route of administration, i.e. subcut, intravenous, intrathecal (see Related Documents section)
1.2. Refer to the equipment manual for the specific CADD Pump model being used for direction on set-up and operation.

2. Safety Considerations
2.1. Refer to the equipment manual for the specific CADD Pump model being used for direction on set-up, operation and troubleshooting for the individual pump.
2.1.1. If not available, or if there are further questions, contact the Palliative Care Clinical Nurse Educator (or Palliative Care Inpatient Unit at 473-3119 on weekends/holidays) with questions.
2.2. Do not get the pump wet as it is not waterproof. If the pump does get wet, dry it with a towel (a battery change may also be required).
2.3. Ensure that the LOCK LEVEL is in the appropriate setting so the patient and family are able to perform only the function on the pump as prescribed by the physician.

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(i.e. continuous infusion only, or continuous and bolus dosing) to avoid risk of receiving more than prescribed dose.

2.4. Obtain a back-up medication order for use in the event of pump failure.

3. Preparation of the Cassette

3.1. The Capital Health Pharmacy Department prepares the medication cassette for all inpatients.

3.2. Community pharmacies prepare the medication cassette for all outpatients.

3.2.1. Check with the patient’s pharmacy regarding their ability to prepare medication cassettes.

3.2.2. The Capital Health Pharmacy provides information to community pharmacies regarding the equipment needed, where to purchase and the procedure to fill cassettes.

4. On-going Maintenance

4.1. Change the extension tubing every 5-7 days.

4.2. Assess the infusion site a minimum of once a shift, or on each home visit, for signs of redness, swelling, induration, hardness, or leakage at the site.

4.3. Review the program at the beginning of each shift, or on each home visit, to ensure correct settings including checking:

4.3.1. Concentration of medication in mg/mL

4.3.2. Rate of infusion in mg/hour

4.3.3. Demand dose (bolus, or breakthrough dose) in mg

4.3.4. Dose lockout (the amount of time that must elapse between demand doses)

4.3.5. The number of bolus doses allowed in a given hour

4.3.6. Reservoir volume

4.3.7. The amount of medication given since the screen was last cleared

4.3.8. Air detector (preset by Biomedical)

4.3.9. Upstream sensor- (preset by Biomedical)

5. Assess the following a minimum of every 4 hours while in hospital, or on each home visit:

5.1. no kinks in the tubing

5.2. pump is working properly

5.3. the number of bolus requested and received by the patient

5.4. pain management

6. Patient/Family Education

6.1. In preparing patients to manage the CADD infusion pump in the home setting:

6.1.1. Assess the patient’s/caregiver’s readiness and ability to learn and manage pump.

6.1.2. Include the caregiver when providing teaching.

6.1.3. Assess the patient’s and caregiver’s level of understanding of:

   • the desired effect of the medication,
• adverse effects of the medication,
• operation of the pump,
• how to evaluate the effectiveness of the medication,
• when and how to assess injection sites, and
• where to obtain required supplies.

6.1.4. Ensure that the patient and caregiver know when and how to contact a health care provider if problems arise.

6.1.5. Explore any financial concerns with the patient/caregiver related to the cost of the cassette and tubing.

7. Documentation

7.1. Document the following on the Medication Administration Record (MAR):
  7.1.1. Initiation of a medication via a CADD Pump,
  7.1.2. cassette changes,
  7.1.3. medication and dose changes, and
  7.1.4. discontinuation of a CADD Pump

7.2. Complete the CADD Pump Record or Syringe Drive (CD0303MR) at the end of each shift.
  7.2.1. Document initiation of, and changes in type or dose of medication at the top of the record with the date when the change was made.

REFERENCES

CADD – Legacy PCA Infusion Pump Model 6300 Quick reference card for clinicians, prepared by Smiths Medical, 2010


RELATED DOCUMENTS
Policies
CC 80-016  Care of Tunneled External Central Venous Catheter (Hickman)
CC 80-018  Care of Peripherally Inserted Central Catheter (PICC) Lines
CC 80-019  Peripheral IV Therapy Initiation and Maintenance
CC 80-020  Implanted Infusion Port/Vascular Access Device (IVAD)
CC 80-060  Initiation and Administration of Medications (Butterfly Needle)
NC 50-20-30 Epidural/Intrathecal Catheter: Changing Medication Cassette, Filter and Tubing

Other
Cancer Chemotherapy Administration Binder

Appendices
Appendix A - Medications That May be Administered by the Subcutaneous (sc) Route

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APPENDIX A

Medications That May be Administered by the Subcutaneous (SubCu) Route

Medications may be given by the subcutaneous route if specified in their manufacturer’s prescribing information (e.g., CPS, package insert, package label). The following is a list of additional medications (i.e., medications for which the subcutaneous route is not described by the manufacturer), approved by the District Drugs and Therapeutics Committee, Capital Health that may be administered by the subcutaneous (sc) route of administration. Clinical practice and/or documentation in the literature supports the subcutaneous route of administration for these medications.

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td>Atropine</td>
<td>Subcutaneous route recommended by manufacturer.</td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td>Mild to severe local irritation; too irritating for continuous sc infusion.</td>
</tr>
<tr>
<td>Codeine</td>
<td></td>
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<tr>
<td>Dexamethasone</td>
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<tr>
<td>Dimenhydrinate</td>
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<tr>
<td>Fentanyl</td>
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<tr>
<td>Furosemide</td>
<td>May cause transient burning and stinging (inject slowly).</td>
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<tr>
<td>Glycopyrrolate</td>
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<tr>
<td>Haloperidol</td>
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<tr>
<td>Hydromorphone</td>
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<tr>
<td>Hyoscine butylbromide</td>
<td></td>
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<tr>
<td>Hyoscine hydrobromide (scopolamine)</td>
<td></td>
</tr>
<tr>
<td>Hydroxyzine</td>
<td>Based on experience with Palliative Care patients.</td>
</tr>
<tr>
<td>Ketamine</td>
<td>Data for continuous sc infusion only.</td>
</tr>
<tr>
<td>Ketorolac</td>
<td></td>
</tr>
<tr>
<td>Lidocaine</td>
<td>Data for continuous sc infusion only.</td>
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<tr>
<td>Lorazepam</td>
<td></td>
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<tr>
<td>Loxapine</td>
<td>Reports of intermittent administration. May cause irritation.</td>
</tr>
<tr>
<td>Meperidine</td>
<td>Not usually used in Palliative Care.</td>
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<tr>
<td>Methotrimeprazine</td>
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<tr>
<td>Metoclopramide</td>
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<tr>
<td>Midazolam</td>
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<tr>
<td>Morphine</td>
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<tr>
<td>Octreotide</td>
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<tr>
<td>Ondansetron</td>
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<tr>
<td>Phenobarbital</td>
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<tr>
<td>Ranitidine</td>
<td>Based on experience with Palliative Care patients.</td>
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Last Update: April 2011

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