Using a ‘Graseby MS26’ Syringe Driver for Continuous Subcutaneous Infusions (CSCI) Protocol

Who

Division 1 Registered Nursing staff for the purposes of administering and monitoring of infusion

Division 2 Nursing staff for the purposes of monitoring of infusion

Medical staff to assist with appropriate prescribing of syringe driver medications

Expected Outcomes

That the continuous infusion of medication via a subcutaneous route, using a portable battery operated pump, will achieve good symptom control for patients.

Precautions

CSCI may be used in Southern Health in managing medication delivery in the following areas:

- Palliative Care
- Type 1 diabetes
- Parkinson’s Disease for the administration of Apomorphine

Why

- To administer medication in the setting of:
  - Persistent nausea and vomiting
  - Obstruction of the digestive tract or impaired absorption
  - Altered level of consciousness as experienced in the terminal phase
  - Uncontrolled pain
  - Ineffective oral medication
- To ensure optimum symptom control and reduce side effects due to fluctuating drug levels
- To avoid intramuscular/intravenous injections
- Maintain patients/consumer independence via an ambulatory device
Equipment

- Syringe Driver - ‘Graseby MS26’
- 9 volt battery
- Appropriate syringe (10ml, 20ml, 30ml)
- 25 gauge butterfly needle or BD Saf-T-Intima™ if available
- Alcohol swab
- Op-site dressing
- Extension tubing
- Medication as ordered
- Appropriate diluent (normal saline or water for injection)
- Medication Order form MR L18
- Pain Assessment chart MR L19
- Ruler

Preparation of the Syringe

Step 1  Calculate the total volume of the medication ordered and then select the appropriate syringe size. (10mls -30mls syringes are acceptable).

Step 2  Draw up the required medication and add the appropriate diluent until the length of fluid in the syringe measures 50mm.
The ‘Graseby MS26’ syringe driver utilises a delivery mode of millimeters per 24 hours. This allows the usage of all brands of syringes. To simplify management, a fluid length of 50mm for all infusions is essential.

As illustrated above, the volume in **millilitres (ml)** will depend upon the volume of drug needing to be delivered and the syringe size, but the total length of fluid must always measure **50 millimetres (50 mm)**.

Within Southern Health there are two areas where the standardization of 50mm is not used. These are McCulloch House and Ward 2 Moorabbin Oncology Unit. Staff working on these units should familiarise themselves with ward based practice.

**Step 4**
Connect the syringe and prime the extension tubing.

Volume will be lost in priming the line therefore the syringe will finish 2-4 hours earlier in the first 24 hour period.

**Step 5**
Label syringe, ensuring volume markings on the syringe are visible.

**Preparation of a New Infusion**

**Step 1**
Insert battery making sure that the positive terminal is placed appropriately in the compartment.

Battery should be dated and discarded after two months.

**Step 2**
An audible alarm will be heard. This can be silenced by pressing the Start-Boost button. This will also commence the infusion. A blinking light indicates that the battery is functional.

**Step 3**
Ensure the rate is set at 50mm. The plunger will be advanced 50mm per 24 hours.
Loading and Securing Syringe into the ‘Graseby MS26’ Syringe Driver

**Step 1**
Place the syringe in the shallow v-shaped recess on the top of the syringe driver with the flange inserted into the syringe slot (as shown in photo below).

**Step 2**
Press release button on the actuator and slide it along the lead screw until it is pressing firmly against the syringe plunger. The actuator can be moved backwards and forwards by pressing the release button.

**Step 3**
Place the rubber strap over the syringe to secure its position.
**Insertion of 25 Gauge Subcutaneous Needle or Saf-T-Intima™**

**Step 1**
Explain to the patient what you plan to do and gain verbal consent.

**Step 2**
Choose a suitable site. Preferred areas are chest wall, upper arms, upper abdominal wall and anterior aspect of thighs as shown below. **Upper back areas can be used if patient is confused or agitated.**\(^1\)\(^2\)

Avoid **oedematous areas**, skin creases, scars or bony prominences. Also avoid lower abdominal areas due to higher risk of infection.\(^1\)\(^2\)
**Step 3**
Clean site with alcohol swab.

**Step 4**
Insert needle at 30-45 degree angle and secure with op-site dressing.

**Step 5**
Attach extension tubing and syringe to needle insitu. If a clamp is present ensure that it has been opened.

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**Management of a Syringe Driver**

**Step 1**
Start the syringe driver by pressing the Start-Boost button for one (1) second until a whirring noise is heard. This needs to be done with every new syringe or if syringe has been disconnected.

**Step 2**
Test that the syringe is working by observing the light flashing every 25 seconds and that there is an intermittent whirring noise of driver.

**Step 3**
Place inside plastic cover and carry bag.
Monitoring of a Continuous Subcutaneous Infusion

The 4 hourly checks that should be documented on MR L19 include:

- Assessment of the patient’s pain/symptom level and side effect profile. Please refer to the multilingual pain assessment charts located in the pain folder kept on each ward.

- Chart the remaining fluid length/volume and estimate the remaining infusion time to ensure syringe driver is running accurately. In an 8 hour shift the syringe should have delivered approximately 1/3 of the total volume.

- Check the insertion site; butterfly should be changed if site is inflamed/tender.

- Ensure the syringe is inserted correctly with no clamps or kinks in the tubing.

- Continue to monitor the patient’s pain/symptom level even after the syringe driver is discontinued in order to assess the effectiveness of pain control during transition to an oral regimen.

Special Notes

Up to 3 medications can be delivered simultaneously by infusion. If clouding or precipitation are observed, then discontinue infusion and notify Palliative Care Service.²,³

The syringe driver is not waterproof and should be disconnected when patient/consumer is showering.

Do not use bolus button to give breakthrough doses. A second butterfly should be inserted to give breakthrough medication if required and then flushed with approximately 0.25mls of air. If Saf-T-Intima™ is used breakthrough doses can be given through the ‘Y’ port.

When syringe driver is no longer in use, the device and the casing should be wiped over with mild detergent and water and returned to the Palliative Care Consult Service.

Contacts

For assistance contact the Palliative Care Nurse Consultant on:

- Clayton pager 346
- Moorabbin pager 805
- Dandenong pager 7210

Or after hours the staff in the following units are a good resource

- McCulloch House ext 45320/45330
- Ward 2 Moorabbin ext 88373
- West 4 Dandenong ext 49053

If an adverse event (actual or ‘near miss’) is associated with using a MS26 syringe driver for continuous subcutaneous infusions, document details in the health record and complete an incident report.


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**SH Policy** | Patient Care | **ACHS** | Continuum of Care
---|---|---|---
**Reviewer** | Palliative Care Nurse Consultancy | **Last review date** | May 2004
**Authoriser** | Executive Quality and Risk | **Next review date** | May 2007

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Appendix A: Forms
### Southern Health

- **Diluent:** As specified
- **Route:** SC
- **Pump Type:** Graseby MS26
- **Dilute to:** Rate
- **50 mmHg**
- **Cease Date:** As specified
- **Start Date:** 14 May
- **Doctor's Signature:** 7 signature
- **Pump Type:** Graseby MS26
- **24 Hr Dose:** 40mg
- **Drug (Approved Name):** Morphine
- **NURSING ADMINISTRATION RECORDS:**
  - **Date:** 14 May
  - **Time:** 8.45 am
  - **Volume in syringe:** 50 mL
  - **Rate Set:** 50 mL/h
  - **Rate:** 50 mL/h

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<table>
<thead>
<tr>
<th>Patient and syringe driver to be observed and recorded 4 hourly</th>
</tr>
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<tbody>
<tr>
<td>See drug chart for breakthrough and orders</td>
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</tbody>
</table>

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**Unit Record Number:**

**Surname:**

**Given Name:**

**D.O.B.:**

**Age:**

**Sex:**

**Medical Officer:**

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**Affix Patient Identification Label**

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**SYRINGE DRIVER MEDICATION CHART FOR SINGLE OR MULTIPLE DRUGS MR L18**

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**DOCTOR'S DRUG ORDERS:**

- **NURSING ADMINISTRATION RECORDS:**

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**Southern Health**

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