Subcutaneous Syringe Driver Policy and Guidelines

Summary:
This guideline sets out to ensure there is a system in place for the safe administration of subcutaneous infusions (for the management of symptoms) by syringe driver over a 24-hour period.

APPROVED BY Clinical Professional Forum: 09/03/2010

REVIEW DATE: 09/03/2011

To be read in conjunction with:
- Consent to Examination and Treatment policy
- Records Management policy
- Incident Reporting and Investigation policy and procedures
- Infection Control and Decontamination policy
- Management of Medical Devices within West Sussex PCT
- Medicines Policy

Compliance with all West Sussex Health policies, procedures protocols, guidelines, guidance, standards and strategies is a condition of employment. Breach of policy may result in disciplinary action.
All reasonable steps have been taken to ensure that this Policy reflects the:

- Equality and diversity agenda
- Relevant articles of the Human Rights Act 1998
- Philosophy of Clinical Governance, providing evidence for compliance with the requirements of the Standards for Better Health of the Department of Health and the NHS Litigation Authority Risk Management Standard for PCTs
- Health and Safety at Work Act 1974 and associated legislation
- Race Relation Act 2000
- Age Discrimination Act 2006
1. **Introduction**

1.1 **Background**

The purpose of this policy is to ensure standardised, safe and effective administration of drugs through the use of a continuous infusion device that will be equally applicable in any setting within West Sussex Health, and support practitioners to provide high quality symptom management to patients when needed.

West Sussex Health (WSH) supports a population of 760,000:

- Adur Arun and Worthing
- Crawley
- Horsham and Chanctonbury
- Mid Sussex
- Western Sussex

WSH has 7 Community Hospitals within its boundary:

- Bognor War Memorial
- Arundel and District
- Midhurst
- Zachary Merton (Rustington)
- Salvington Lodge (Worthing)
- Kleinwort Centre (Haywards Heath)
- Horsham

WSH is served by 4 hospices:

- St Wilfrid's (Chichester)
- St Barnabas House (Worthing)
- St Catherine’s (Crawley)
- St Peter and St James (Chailly)

WSH has links with 3 Cancer Networks:

- Sussex
- Surrey West Sussex and Hampshire (SWSH)
- Central South Coast

In addition, the PCT hosts the Macmillan Palliative Care Service based in Midhurst, supporting patients in Western Sussex, and parts of Surrey and Hampshire.

Symptom management is an integral part of palliative and end of life care, playing a major part in initiatives such as the Gold Standards Framework and Liverpool Care Pathway. Symptom management is a key component of care for the dying patient. Poorly managed symptoms cause distress and suffering for both patients and families, with the impact considerable. WSH has a duty of care to ensure that effective education and training is easily accessible to practitioners who will be using infusion devices.
1.2 Devices in use

In the interests of patient safety, and in light of MDA guidance, (The Medical Devices Agency Hazard Reports. March 2000, June 2000, August 2002) and NPSA guidance (The National Patient Safety Agency “Improving Infusion Device Safety”. Issued 20 May 2004) West Sussex Health uses one type of subcutaneous syringe driver, the Graseby MS26 only.

However, it is acknowledged that patients who receive care from other providers, such as hospices, may encounter other devices. It is recommended that WSH staff change to the Graseby MS26 device as soon as is practicable, when patients are transferred to their care.

1.3 Servicing

WSH has a service level agreement (SLA) with East Sussex Hospitals NHS Trust to service medical devices, including syringe drivers.

1.4 Patients requiring risk assessment

Some patients will be prescribed drugs to be administered via continuous subcutaneous infusion in circumstances other than at the end of life e.g. long term pain or other symptom control, or may require multi-agency care. In such circumstances where implementation of this policy may create challenges, it is expected that the responsible nurse will undertake a formal risk assessment and formulate an action plan. This should then be discussed with the relevant line manager, with a copy sent to the Director for Patient Safety. Risk Management is the responsibility of all WSH staff (Risk Management Strategy, Policy and Procedures Section 6.11). A quick reference guide on completing risk assessments can be found on page 2 of the Risk Management Strategy, Policy and Procedures document.

2. Syringe driver guidelines best practice inclusions

The following content has been agreed as best practice by the SCN Palliative Care Group and the Palliative Care Nurses/AHP (July 2005).

- Definitions and functions of a syringe driver
- Indications for use
- Roles and Responsibilities of the Medical Practitioner and registered nurse
- Advantages and Disadvantages
- Equipment needed and how to set up
- How to set the rate
- Skin site rotation
- Insertion of the infusion needle
- Commencement of the infusion
- Monitoring the syringe driver when in use
- Transfer of patients between hospital/ hospice and the community
- Carriage of drugs (community)
3. **Definition and functions of a syringe driver**

The syringe driver is a portable, battery operated device for mechanically delivering drugs into a subcutaneous site at a predetermined rate over a specific length of time. The purpose of administering drugs in a subcutaneous infusion is to achieve a steady plasma concentration of drugs, when other routes are inappropriate.

The following guidelines relate to the use of syringe drivers with **subcutaneous sites**.

4. **Indications**

Indications for use might include:
- Persistent nausea and vomiting
- Dysphagia
- Intestinal obstruction
- Poor absorption of oral medications
- Patient too weak to use other routes for medication
- Fear of injections
- Cachexia
- Patient request
- Pain and poor symptom control

N.B. The use of a syringe driver may be contraindicated in certain conditions, e.g. severe Thrombocytopenia

5. **Roles and Responsibilities**

5.1 **Medical Practitioner:**

- In the community, the Specialist Palliative Care Consultant, specialist nurse, GP, community matron or community nurse may recommend either verbally or in writing treatment via a syringe driver, but the GP (or other suitably qualified practitioner e.g. an independent nurse prescriber) will prescribe with the community nurse and / or nurse specialist monitoring and supervising the device.

- The prescribing doctor must ensure written instructions are given, which includes **drug, diluents, dose, route,** and **time over 12/24 hours** but NOT the mls.
5.2 Registered Nurse

- Each nurse is individually accountable through the NMC Code: Standards of Conduct, Performance and Ethics (2008) and guided by the NMC Standards of Medicines Management (2007) to ensure they are competent to check, set up and monitor a syringe driver.

- In a hospital inpatient setting - two registered nurses need to check the drugs, dosage, and the rate of delivery on the pump. When commencing an infusion in the community setting, and at subsequent visits, two nurses should be present. Whilst it is acknowledged that best practice recommends two registered practitioners should undertake checking when commencing an infusion, it is recognised that some registered practitioners will be working in conditions where this is not always possible.

- All nurses, except nurse independent prescribers (V300), must obtain appropriate written instructions from the medical practitioner. The prescription must be documented on the drug chart. This should include drug, diluent, dose, route, and the length of time the infusion is to be delivered over but NOT the mls.

- The nurse must monitor subcutaneous syringe driver infusions in accordance with the policy guidance 7.7

- The nurse must use a syringe driver that is maintained and in working order and is in date for maintenance.

- Explanations and time needs to be spent with the patient and his/her family to prepare them physically and psychologically helping them to understand and accept the concept and rationale for use of the syringe driver. Many patients and families have questions, concerns and fears regarding the need for syringe driver. The nurse needs to explore any anxieties with the patient / relatives before it is set up.

As with any other drug administration, consent must be obtained (and documented) and information must be provided for the patient. This will include obtaining consent to any changes to the prescription during the episode of care. In English law, no one is able to give consent to treatment on another adult’s behalf even where the adult does not have the capacity to give or withhold consent. However, in certain circumstances, it may be lawful to carry out such treatment (The Mental Capacity Act 2005, implemented in 2007, updates the Mental Health Act 1983). Health professionals must also be aware of any guidance on consent issued by their own regulatory body e.g. NMC Code: Standards of Conduct, Performance and Ethics (2008).

It remains the responsibility of the nurse to ensure that the patient and carer are aware of any potential problems that may occur whilst using the syringe driver, including who and when to contact them. This should be documented.
6. Advantages and disadvantages

6.1 Advantages

- Delivers drugs at even rate continuously and allows stable plasma concentration and avoids peaks and troughs
- Can control multiple symptoms with a combination of drugs
- Increases patient comfort and removes the pain and fear of regular injections, which are particularly distressing for cachexic patients
- It allows staff in the community to plan visits when practical and necessary according to the patient's condition, rather than being bound by frequent injections
- Patient's mobility and independence may be maintained

6.2 Disadvantages

- Their connection for some patients and their relatives with impending death and see it as last resort
- Possible pain / inflammation at the infusion site reducing drug absorption
- The alarm system only alerts to an obstructed plunger or battery problems. It does not alert if the site is not patent or infusion too rapid
- Syringe drivers are not supplied with a locked box
- Syringe drivers cannot record data activity
7. **Graseby MS26 – setting up**

<table>
<thead>
<tr>
<th>MS26 Graseby Syringe Driver 24 Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Colour Green</strong></td>
</tr>
<tr>
<td>Delivers in mm per 24 hours</td>
</tr>
<tr>
<td>Rate set= length of fluid delivered in 24 hours</td>
</tr>
<tr>
<td>For example 48= 48 mm in 24 hours</td>
</tr>
<tr>
<td>Indicator light flashes every 25 seconds</td>
</tr>
<tr>
<td>Start/Boost button present</td>
</tr>
<tr>
<td>Rate indicated with <strong>Orange lettering</strong></td>
</tr>
</tbody>
</table>

**Warning**
Great care should be observed in driver identification.
Where appropriate, a recommended **Standard** has been set that relates to equipment or clinical practice. The purpose of the recommended **Standards** is to reduce the risk of user error in subcutaneous syringe driver therapy. It is acknowledged that suitably skilled and experienced practitioners may practice at an advanced level for the benefit of the patient. In these circumstances, practitioners are required to state their rationale for deviating from the recommended standard.

### 7.1 Equipment needed

- MS26 syringe driver with cover
- Appropriate syringe (20 ml, Braun Omnifix LuerLoc™ as Standard)
- Diluent (water for injection or normal saline)
- Sterile Needle (to draw up drugs).
- Infusion set or administration set (100cm set with 25g Butterfly needle for subcutaneous infusion as Standard)
- New 9volt 6LR61 alkaline battery for every new patient episode as Standard
- Transparent adhesive dressing
- Prescribed drugs
- Drug additive label
- Syringe driver monitoring form / stock sheet
- Patient’s prescription chart and attached syringe driver monitoring chart
- Sharps box

Braun Omnifix Luer Loc™ syringes are the only type of syringes to be used in these drivers. The use of 20 ml Braun Omnifix LuerLoc™ is recommended as the standard syringe for subcutaneous syringe drivers. The use of a standard syringe reduces the risk of error as **fluid length** not volume determines the rate. Practitioners should be aware that different makes of syringe can produce different fluid lengths (mm) even when the volume is the same. This is due to variances in the

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barrel size and is the reason for standardising syringe type. Always measure the fluid length. To comply with MDA 2010 01 general Medical Devices Alert, Graseby MS26 subcutaneous syringe drivers must be set up in accordance with the manufacturers’ instructions. In practice this means practitioners must use the correct terms: i.e. the use of mm and fluid length not volume

The use of a Standard infusion set reduces the risk of error in determining fluid length. Patients who have a reaction to metal needles can use a sterile infusion set with integral plastic cannula e.g. Sof-set.

7.2 How to set up

- Prior to preparing the infusion the prescription should be checked and patient identification should be carried out.

- All drugs to be administered must be written up on a designated prescription chart and signed by a doctor or nurse independent prescriber.

- Before preparing and setting up the syringe driver wash and thoroughly dry your hands.

- Check and assemble required drugs and diluent ensuring that the stock sheet shows no discrepancy.

- Draw up prescribed medication into the syringe. Using water for injection as the diluent will minimise incompatibility reactions. Normal saline (0.9% sodium chloride) may be needed as the diluent for some drugs. It is worth noting that dilution of the infusion to the maximum volume reduces adverse site reactions and incompatibility problems.

- Draw up to 48mm fluid length as Standard. Measure the length of the syringe barrel against the millimetre scale on the driver.

  To minimise the risk of error, WSH recommends the following Standard. Fluid length is 48mm and the rate is set to 48.

- Attach the syringe to the infusion set. Use this fluid to prime the line when a new infusion set is being used.

  Remember - When the line is primed the infusion will finish early as the total fluid length in the syringe barrel is reduced.

- Set the standard delivery rate of 48 on the syringe driver. The Standard rate should be used unless guided otherwise by an appropriately skilled clinician.

- Attach the completed drug additive label to the syringe (not the syringe driver) and ensure that you can still see the fluid and scale markings. This label should include the following information:
  - Name of Patient
  - Date
Load syringe to driver.

The syringe sits on a shallow v-recess on the top of the Syringe Driver.

- Ensure the syringe ear is located in the syringe barrel slot.
- Slide the actuator assembly using the white release button until it rests against the plunger. Ensure the syringe plunger is located in the slot of the actuator: ensuring that there is no space between the plunger and the actuator.
- Secure the syringe onto the syringe driver using the rubber strap ensuring the wings of the syringe fit into the syringe slot.

Ensure that you have correctly inserted the syringe into the driver. If this is not done properly, the drive mechanism cannot deliver the infusion.

- Ensure that the driver has a new 9v battery inserted correctly for every new patient episode and that it is covered by the battery cover.

To fit a battery:

1. Slide off the cover at the back of the Syringe Driver.
2. Push in the battery.
   - The label in the battery compartment shows which way round to put it.
3. Slide the cover on again until it latches shut.

The alarm will sound for about 15 seconds after the battery is fitted.
When the battery is inserted properly the alarm will sound. Insert battery, press and release START button to silence audible alarm and activate motor.

- Observe the driver to note the flashing light that indicates the driver is working. Also listen for the motor whirr as the motor propels the actuator.

- A clear cover is supplied with the syringe driver and should be fitted over the driver.

- Syringe Driver monitoring forms should be used with each driver application.

7.3 Siting the Subcutaneous Syringe driver Infusion

Ambulatory patients prefer chest and abdominal sites, whilst other sites such as anterior aspect of thighs and scapula can be considered in those who are immobile. However it is good practice to avoid areas which could be awkward or uncomfortable if a patient requires frequent repositioning.

- Contraindicated areas for siting include:
  - Damaged skin or skin that is bruised or reddened.
  - Oedematous areas
  - Any area currently receiving radiotherapy
  - Areas over bony prominences or near to joints
  - Avoid areas near to central lines
  - Avoid the hepatic area in cachexic patients

- Considering the correct site is paramount to patient comfort
**Recommended sites**

- Check preferred method of wearing pump before selecting infusion site.
- Avoid upper arm site in bed-bound patients who require regular turning.
- Check site regularly

### 7.4 How to set the rate

To minimise the risk of error, WSH recommends the following Standard.

**Fluid length is 48mm and the rate is set to 48.**

The **Standard** rate should be used unless guided otherwise by an appropriately skilled clinician with a pertinent rationale for the change. In such cases, the rate can be calculated as follows;

- The rate setting is calculated by dividing the fluid length in the barrel of the syringe by the required infusion period in days (MS26 daily rate syringe driver).

**Example:**

**MS26 daily rate syringe driver (green label)**

\[
\frac{48\text{mm length}}{1\text{ day}} = \text{rate setting of 48 mm per 24 hours}
\]

- Set the rate by using the rate adjuster key only.
7.5 Skin site rotation

Only change the site if there is evidence of erythema, swelling, tenderness or infection. The change of the site can vary from a few days to a few weeks. Record any site changes along with the reason for the change.

7.6 Insertion of the infusion needle

- Attach the butterfly infusion set to the syringe.
- Prime infusion set.
- Insert needle of giving set subcutaneously (anterior chest wall, upper arms or thighs, upper back). Great care must be taken to ensure the syringe plunger is not accidentally pushed during the placement of the butterfly.
- Secure with transparent dressing.
- Secure syringe in position on the syringe driver with the rubber strap.
- Press start button again to start motor. The indicator light will start flashing.
- Record, in the appropriate documents, that the infusion has commenced.

7.7 Monitoring the syringe driver when in use

- The site of the infusion should be checked and the record chart completed one hour after setting up the infusion and then every four hours (inpatient clinical setting and at each clinical visit for community patients). Patients receiving syringe driver therapy for end of life care in the community should be referred to the Twilight nursing service or out-of-hours nursing service for monitoring.
- The following should be noted:
  - Length of fluid remaining in the syringe – calculate if it is running to time
  - Rate setting
  - Yellow light flashing every 25 seconds for MS26
  - The sound of the motor activating.
  - Condition of skin site – pain/discomfort, swelling, erythema, leakage of fluid, bleeding
  - Any signs of crystallisation or discolouration in the syringe or line
  - Infusion line primed with fluid and not kinked
  - Effectiveness of the medication
- It is best practice not to remove the syringe from the driver – may cause siphoning under the effect of gravity. Use a ruler to measure in mm if necessary.

- Following an occlusion in the line it is vital that the syringe driver be disconnected and the line purged. If this is not done a post occlusion bolus dose can be unintentionally delivered (MHRA 2003)

- To avoid siphonage it is vital that the syringe driver is positioned no more than 80 cm/30 inches above the infusion site. (MHRA 2002)

- Any change in the nature of the syringe contents (cloudiness or signs of crystallisation) will necessitate the discontinuation of the infusion. The prescription should be checked with Pharmacy and / or the Palliative Care Team / GP and be recorded in the notes.

8. Transfer of patients between hospital/hospice and the community

Ensure syringe driver in use is covered by the maintenance policy within the Trust and in good working order.

When booking transport inform the transport service that the patient has a syringe driver.

When the patient is discharged from hospital / hospice to home, the community or nursing home syringe driver should be attached as soon as possible and the hospital syringe driver sent back safely to the hospital equipment library; the hospice syringe driver should be sent back to the hospice.

The hospital / hospice registered nurse should ensure that they communicate with the registered nurse in the community /nursing home.

The hospital/hospice registered nurse should ensure the syringe driver is labelled, with the date, content, time and signature of the administrator of the drugs in use.

The community / nursing home registered nurse must be trained to use the syringe driver, and needs to understand that he / she is fully responsible for the syringe driver equipment whilst it is in the community.

9. Carriage of drugs (community)

Drugs should not be carried in the Community nurse’s car unless under extreme circumstances. Relatives should be encouraged to obtain drugs from the chemist or the chemist to deliver them.

A person may possess and supply a controlled drug if he is conveying it to a patient for whom the drug has been prescribed (Guide to the Misuse of Drugs Act 1971)
Community nurses and hospital based support teams shall only carry Controlled Drugs or prescription-only medicines which have been prescribed for named patients by suitably qualified medial practitioners.

Nurses may transport medication, including CDs, where patients or their carers/representatives are unable to collect them, provided the nurse is conveying the medication to a patient for whom the medicine has been prescribed e.g. from a pharmacy to the patient’s home (NMC Standards of Medicine Management, 2007).

10. **Disposal of controlled drugs (community)**

All medicines obtained for a patient by prescription are the property of the patient. Where possible, any disposal should be done either by the patient or their relatives with their authorisation.

Where the patient is deceased the drugs should be returned by a relative to the community pharmacy for disposal. If there is no relative available or if the relative is unable to do this, this should be reported to the line manager

A record should be recorded in the patient’s notes. (Guidelines for the Safe and Secure Handling of Medicines, DOH 1988)

11. **Drugs requiring specialist palliative care advice**

The following MUST only be carried out after obtaining specialist advice:

- Adding dexamethasone 0.5-1mg to the syringe driver solution.
- Hyaluronidase 1500u can be injected into the site prior to the infusion. Do not mix in the syringe as degradation of the drug may occur.

12. **Do not:**

- Press the boost button to deliver extra medication. It is not good practice to use the boost button to alleviate symptoms. Boosting the driver delivers an extra dose of all medicines in the syringe, not just the required ones: it requires a prescription: it frequently does not provide a therapeutic dose: and can lead to unexpected early completion of the syringe leaving patients without effective symptom relief. For additional symptom relief, administer a stat dose of the necessary medication and ensure the medication is properly reviewed.
- Get the syringe driver wet.
- Apply sticky labels to the syringe driver itself, the giving set or to the plastic case.
- Run the syringe driver for more than 24 hours without changing the drugs.
• Stop the syringe driver on discharge or transfer.

13. Maintenance and servicing

• Clean with a soft disposable cloth dampened with a solution of mild detergent in water. The cover should also be cleaned daily when soiled and between patients.

• The syringe driver should be maintained annually, or before if the machine is not working. Refer to your local maintenance policy.

• It is the responsibility of the ward manager/team leader to ensure that the equipment has been adequately maintained.

• If the syringe driver is dropped, gets wet or is damaged in any way, it should be removed from use immediately and returned for maintenance.

• A new battery should last for 50 days. A new battery is required for every new patient episode.

• If the light flashes, the battery will last for a minimum of 24 hours.

• Should the indicator light stop flashing the battery should be replaced immediately.

14. Accountability and responsibility for policy and implementation

14.1 Chief Executive
The Chief Executive has overall accountability for the reduction of risks associated with the development, implementation, embedment, monitoring, audit and review of the guidelines.

14.2 Managing Director of Provider Services
The Managing Director of Provider Services has overall responsibility for the reduction of risks associated with matters of clinical governance and for the reduction of risks associated with the development, implementation, embedment, monitoring and review of the guidelines.

14.3 Department Managers
Department managers are responsible for ensuring that relevant staff have access to and have read and understood the guidelines.

14.4 Staff
All staff that are involved in patient care involving the use of syringe drivers are responsible for ensuring that they are aware of the requirements of these guidelines.
15. **Training**

- All those responsible for the commencement, administration and nursing care related to syringe driver therapy must have undertaken a recommended syringe driver course. See Appendix 5

- Syringe Driver training must be booked through WSH Education & Training Department

- It is the responsibility of all staff providing subcutaneous syringe driver therapy, to maintain their competence through appropriate learning activity to ensure current best practice in accordance with the Nursing & Midwifery Council Prep (Post-registration & practice) Standards.

- Department managers should identify their staffs’ training requirements via their annual review and personal development record (PDR) and ensure that their staff have access to information regarding training sessions and that they are released to attend at an appropriate agreed time.

- Line managers should ensure that new staff are included at the earliest opportunity.

16. **Monitoring**

The safe keeping and good order of paper documentation will at times be subject to monitoring by the Risk Manager.

17. **Audit**

Department managers will need to audit embedment of the guidelines at regular intervals, but at least once every 2 years.

18. **Review**

These guidelines should be reviewed every 2 years (or earlier if necessary) to ensure best practice is followed.

19. **Acknowledgement**

The following syringe driver polices were reviewed during the production of this policy:

- Adur, Arun and Worthing PCT
- Crawley PCT
- Horsham & Chanctonbury PCT
- Mid Sussex PCT
- Western Sussex PCT
- Sussex Cancer Network
20. **Further resources**


The Palliative Care Handbook. Advice on clinical management, 6th edition. St Wilfrid’s Hospice Chichester, St Richard’s Hospital, Chichester.

21. **References**

SCN Palliative Care Group and the Palliative Care Nurses/AHP (July 2005).


NMC Standards of Medicines Management (2007)


Guide to the Misuse of Drugs Act 1971

Guidelines for the Safe and Secure Handling of Medicines, DOH 1988

The Medical Devices Agency Hazard Reports. March 2000, June 2000, August 2002

The National Patient Safety Agency “Improving Infusion Device Safety”. Issued 20 May 2004

MDA 2010 01 General Medical Devices Alert

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**Appendix 1**

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</tr>
</tbody>
</table>
**Local contact details:**

1. **Midhurst Macmillan**  
   Midhurst Community Hospital  
   Dodsley lane  
   Midhurst  
   GU29 9AW  
   Tel. 01730 811121  
   Fax. 01730 816049

2. **Crawley Hospital**  
   West Green Drive  
   Crawley  
   RH11 7DH  
   Tel. 01293 600300

3. **Princess Royal Hospital**  
   Lewes Road  
   Haywards Heath  
   RH16 4EX  
   Tel. 01444 441881

4. **Royal Sussex County Hospital**  
   Eastern Road  
   Brighton  
   BN2 5BE  
   Tel. 01273 696955

5. **St Richard’s Hospital**  
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   Chichester  
   West Sussex  
   PO19 4SE  
   Palliative care specialist nurses:  
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   Medicines Information Department:  
   Tel. 01243 831516 or 788122 ext 3344
6. Worthing Hospital  
   Lyndhurst Road  
   Worthing  
   West Sussex  
   BN11 2DH  
   Palliative Care Nurses:  
   Tel. 01903 205111 Ext 4801  
   Fax. 01903 285299

7. St Barnabas House  
   Columbia Drive  
   Worthing  
   West Sussex  
   BN13 2QF  
   Tel. 01903 264222  
   Community Palliative Care Team:  
   Tel. 01903 264222  
   Fax. 01903 534031

8. St Catherine’s Hospice  
   Malthouse road  
   Southgate  
   Crawley  
   W Sussex  
   RH10 6BH  
   Tel. 01293 447333  
   Fax. 01293 611977

9. St Peter and St James Hospice  
   North Common Road  
   North Chailey  
   Lewes  
   East Sussex  
   BN18 4ED  
   Tel. 01444 471598

10. St Wilfrid’s Hospice  
    Grovenor Road  
    Donnington  
    Chichester  
    West Sussex  
    PO19 8FP  
    Tel. 01243 775302
## Appendix 2: Troubleshooting

<table>
<thead>
<tr>
<th>The Problem</th>
<th>Possible Causes</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Syringe Driver will not start?</td>
<td>The START button has not been pressed firmly enough</td>
<td>Press again</td>
</tr>
<tr>
<td></td>
<td>There is no battery in the driver</td>
<td>Ensure spare battery is kept in box</td>
</tr>
<tr>
<td></td>
<td>The battery is in the wrong way round</td>
<td>If no cause found send for service</td>
</tr>
<tr>
<td></td>
<td>The battery needs replacing</td>
<td></td>
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<tr>
<td></td>
<td>Syringe driver is faulty</td>
<td></td>
</tr>
<tr>
<td>The infusion rate is too fast or has ended early</td>
<td>Incorrect rate set</td>
<td>Stop and contact a doctor immediately</td>
</tr>
<tr>
<td></td>
<td>Incorrect size syringe selected</td>
<td>Use a 20ml Braun Omnifix Luer lok™ syringe</td>
</tr>
<tr>
<td></td>
<td>Syringe inserted incorrectly</td>
<td>Insert correctly</td>
</tr>
<tr>
<td></td>
<td>Plunger position measured incorrectly</td>
<td>Re-adjust and contact a doctor immediately</td>
</tr>
<tr>
<td></td>
<td>The line was primed after the plunger position was measured</td>
<td>No need for correction but remember the infusion will run out before 24 hours</td>
</tr>
<tr>
<td></td>
<td>The boost button has been used</td>
<td>Don’t use this facility</td>
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<td></td>
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<td>Complete an incident form if necessary</td>
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The infusion is running too slowly or has stopped:

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<tr>
<td>Incorrect rate set</td>
<td>Re-adjust and contact a doctor immediately</td>
</tr>
<tr>
<td>Incorrect size syringe selected</td>
<td>Use a 20ml Braun Omnifix Luer lok™ syringe</td>
</tr>
<tr>
<td>Syringe inserted incorrectly</td>
<td>Insert correctly</td>
</tr>
<tr>
<td>Plunger position incorrectly measured</td>
<td>Re-adjust and contact a doctor immediately</td>
</tr>
<tr>
<td>Tubing may be kinked</td>
<td>Check for kinks</td>
</tr>
<tr>
<td>Site maybe inflamed</td>
<td>Stop infusion and re-site, check for precipitate in the syringe driver which might have caused the inflammation. Check the drug combination with a palliative care specialist/GP/independent prescriber</td>
</tr>
<tr>
<td>Drugs have precipitated and blocked the line</td>
<td>Stop infusion and re-site, check for precipitate in the syringe. Check the drug combination with a palliative care specialist/GP/independent prescriber</td>
</tr>
<tr>
<td>The battery needs replacing</td>
<td>Ensure spare battery is always kept in box</td>
</tr>
<tr>
<td></td>
<td>Complete an incident form if necessary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Problem</th>
<th>Possible Causes</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>The syringe driver has stopped with flashing light still</td>
<td>The mechanisms for pushing the plunger has worn out</td>
<td>Send for service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Responsible Author:</th>
<th>Professional Practice Facilitator</th>
<th>Status:</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Owner:</td>
<td>Professional Practice Facilitator</td>
<td>Effective date:</td>
<td>09/03/2010</td>
</tr>
<tr>
<td>Responsible Director:</td>
<td>Director of Nursing and Patient Safety</td>
<td>Review date:</td>
<td>09/03/2009</td>
</tr>
<tr>
<td>flashing</td>
<td>Patient has reaction at needle site</td>
<td>Reaction to winged infusion set</td>
<td>Perform risk assessment and consider changing the winged infusion set for a plastic or teflon peripheral set</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------</td>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Reaction to vapour permeable dressing</td>
<td>Change the dressing to a sterile dry dressing and record</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drug is an irritant</td>
<td>Perform risk assessment and consider if syringe size needs to be increased to 30ml</td>
<td></td>
</tr>
</tbody>
</table>

*If the above measures are not able to solve the problem, contact your line manager and/or obtain specialist palliative care advice*
Useful tips

There are a few additional points, which you may find useful to know:
1. It is normal for the machine to make a ‘whirring’ noise every few minutes. It probably will not be loud enough for anyone else to hear and should not keep you awake at night.
2. It is normal for a yellow light to flash. This indicates the battery is working.
3. The machine does have an alarm and your nurse should let you know how this sounds. The alarm usually indicates that the syringe is empty or there may be a kink in the tubing. Should the alarm sound at anytime or you are worried please let your nurse know.

Useful Contacts

General Practitioner ..................................................
Telephone Number ...................................................
Community Nurse .....................................................
Telephone Number ...................................................
Out of Hours
Telephone Number ..................................................
Hospice (if applicable) ............................................... 
Telephone Number ..................................................

Information taken from Graseby Instruction manual 2004
Issue Date  Review Date
What is a Syringe Driver?

A syringe driver is a small, portable, battery operated pump designed to give medication, in liquid form, over a 24 hour period through a small needle which is inserted just under the skin.

It is made up of 3 parts:

1. The machine itself.
2. The syringe, containing the medicines, which is secured in place by a small strap.
3. Attached to the syringe is a thin piece of tubing about 1 metre long, which has a small needle on the end of it.

The syringe driver is portable and can be concealed in clothing or a holster. Alternatively, it can be placed discreetly under your pillow if you find you are spending more time in bed.

Why do I need a Syringe Driver?

The syringe driver provides an alternative way of controlling symptoms and is a useful way of giving regular medication, so avoiding constant injections. For example, it may be that you are unable to take your medicines by mouth at the present.

There are a variety of medicines, which can be used in the syringe drivers, these include medicines to help relieve pain, control sickness and medicines, which can help you, feel more relaxed. It is possible to have more than one drug in the syringe driver at once; however, if a number of medicines are required it may be necessary to use 2 syringe drivers. Whatever medications are prescribed for you, your nurse will give you a full explanation including any restrictions on driving or operating machinery.

What happens next?

Once all explanations have been given and you are happy to try the syringe driver, your nurse will get the machine and medications ready. The nurse will insert the needle just under the skin. This may be on your upper arm/leg, your tummy or your chest. The syringe driver will commence once the battery is in place and the Start button is pressed. The needle can usually stay in the same place for several days, however, sometimes some people do have a reaction at the site of the needle. Your nurse will be making regular checks to observe for any reactions, so please do not worry. The machine will be placed in a plastic casing to prevent accidental damage.

Can I carry on as normal?

We hope that the machine will help to make you feel more comfortable and you can be as active as you want to be. Here are some answers to some commonly asked questions:

YES you can have a bath. Try to keep the needle site dry and do not immerse the machine in water and avoid placing the syringe driver above you.

YES you can eat what you feel like eating and a little alcohol will do no harm.

YES it is alright to go out and be as mobile as you wish to be.
Appendix 4: Equipment

1. Braun Omnifix – syringe hypodermic concentric Luer lok™ 20ml
   Catalogue Code FWC030

2. 100cm set with 25g Butterfly needle for subcutaneous infusion
   Catalogue Code FSB034
Appendix 5: Education and Training

All those responsible for the commencement, administration and nursing care related to syringe driver therapy must have undertaken a recommended syringe driver course. This training must consist of at the least:

- The rationale for syringe driver use
- Common medications and compatibility
- How to set up a syringe driver safely
- Troubleshooting if difficulties arise.

Following the course attendance, Registered Nurses must undertake a period of supervised practice and be ready for assessment within 3 months of course completion. Any nurse who is competent to administer syringe driver therapy gives supervision.

In accordance with best practice and the NMC, a minimum of 3 clinical assessments should be undertaken prior to the Registered Nurse being deemed competent to carry out syringe driver duties. This should include all aspects of syringe driver therapy.

A Registered Nurse who is competent in syringe driver therapy and is currently practising this skill should make the assessment. Ideally the assessor should hold relevant teaching/assessing qualifications such as mentorship. A record of the assessment must be dated and signed by both parties and kept as evidence for their portfolio.

Each nurse is accountable for their actions and as such has a responsibility to maintain up to date practice and actively seek opportunities to maintain clinical skills (NMC, 2008). As part of maintaining competence, Registered Nurses are required to undertake learning activities relevant to their practice to ensure they provide a high standard of practice and care (NMC: 2008).

Registered Nurses moving from other healthcare organisations may practice this skill if they are able to provide evidence of initial training, attendance at updates and evidence of continued practice within this arena to their line manager. The manager may consider an assessment in practice if additional evidence is required. If Registered Nurses are unable to provide this evidence, then training should be undertaken.
Practical Assessment

Guidelines for the Assessor:

Prior to undertaking the procedure the nurse must demonstrate their understanding of:

1. The present condition of the patient and the relevant medical/nursing history.
2. The appropriate trust’s policy.
3. The suitability of the site.
4. The reconstitution of the drug; rate of administration; accurate calculation of dose; its action and possible side effects; normal dosage range; storage; compatibility; all according to manufacturer’s instruction.
5. Equipment required.
6. The use of the syringe driver
7. Potential complications of the procedure.

The following aspects must be considered in assessing the practical skills, which fulfil the need for patient comfort, patient safety and maintenance of asepsis:

Preparation:
1. Patient
2. Equipment
3. Environment

Procedure:
1. Placing the device on site
2. Correct reconstitution
3. Priming line
4. Correct loading of syringe driver
5. Correct disposal of equipment post administration
6. Patient monitoring

Assessment of competence must incorporate the following nursing skills:

Verbal:
1. Explanation of procedure to the patient
2. Explanation of procedure to other members of the care plan
3. Clear delivery of instructions to any assistant
4. Demonstration of a caring sensitive manner in dealing with the patient and carers

Written:
1. Correct completion of drug record
2. Correct completion of nursing documentation.

Failure of the Assessment
Should competence not be reached in the assessment, then further periods of supervised practice with specific guidance for improvement in practice should be given, within reason.
RECORD OF ASSESSMENT

Name…………………………….Area of clinical Practice/Team /Ward…………………………….  

Date syringe driver therapy educational programme attended: -  

The above programme was followed by periods of observation and supervised practice before competence was assessed in the following areas: -

<table>
<thead>
<tr>
<th>Practice Standard</th>
<th>Assessment 1</th>
<th>Assessment 2</th>
<th>Assessment 3</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Date</td>
<td>Name</td>
<td>Date</td>
</tr>
<tr>
<td>Knowledge of WSH policy</td>
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<tr>
<td>Rationale for SD therapy</td>
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<tr>
<td>Provides explanation to patient/ significant others</td>
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<tr>
<td>Assessment of patient’s present medical condition &amp; symptom management</td>
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<tr>
<td>Review / Suitability of infusion site</td>
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<td>Valid prescription</td>
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<tr>
<td>Knowledge of medication</td>
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<tr>
<td>Positive patient identification</td>
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<tr>
<td>Stock review</td>
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<tr>
<td>Appropriate use of standard infection control measures</td>
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<tr>
<td>Use of Standard equipment in accordance with policy</td>
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<tr>
<td>Correct reconstitution of medicines</td>
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<td></td>
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<tr>
<td>Measures fluid length</td>
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<td></td>
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<tr>
<td>Correct line priming</td>
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<td></td>
<td></td>
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<tr>
<td>Correct Subcutaneous device placement</td>
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<td>--------------------------------------</td>
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<tr>
<td>Correct Loading of syringe to driver</td>
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<td></td>
<td></td>
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<tr>
<td>Correct rate setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct battery insertion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks to see if driver is working</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct completion of documentation including drug stock record.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Plans next visit</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Feedback**

Assessments completed  Yes / No
Competency achieved  Yes / NO  Date

Name of Final Assessor………………………………………………

Designation & location………………………………………………

**Responsible Author:** Professional Practice Facilitator  **Status:** Final
**Responsible Owner:** Professional Practice Facilitator  **Effective date:** 09/03/2010
**Responsible Director:** Director of Nursing and Patient Safety  **Review date:** 09/03/2009