



sussex cancer network

FINAL

Subcutaneous Syringe Driver Guidelines

Version	Author	Who circulated to	Date
1	SCN Palliative Care Group sub group	SCN Palliative Care Group	Agreed November 2005
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It is essential to read both section 1 and the relevant specific guidance in section 2

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1. Background

During 2005 the SCN Palliative Care Nurses/AHP Group compared the 16 syringe driver guidelines utilised across the SCN and developed the first SCN-wide syringe driver guideline. This version updates that guidance for agreement by the SCN Palliative Care Group.

The aim of this document is to clarify and clearly outline a protocol for the safe use of the syringe drivers currently used across the SCN. In 2005, there were only 2 devices in use, the Graseby Medical MS 26 and MS 16a. Since that time, BSUH have purchased the McKinley T34 and are rolling out the training and implementation across that Trust. ESHT are still using the MS 16a at the Conquest Hospital but now use the Graseby Omnifuse at Eastbourne DGH.

2. Types of Syringe Drivers used in the SCN

The following SCN providers use the MS16a (blue) syringe driver only:

- South Downs Health NHS Trust
- The Martlets Hospice
- St Michaels Hospice
- Hastings and Rother PCT
- Conquest Hospital (ESHT)

The following SCN providers use the MS26 (green) syringe driver only:

- St Wilfrid's Hospice
- East Sussex Downs and Weald PCT
- St Peter and St James Hospice
- West Sussex PCT
- St Barnabas Hospice

The following SCN providers use both the MS16a and the MS26:

- Hospice in the Weald
- St Catherine's Hospice

The following SCN providers use other sub-cutaneous infusion devices:

- Eastbourne DGH (ESHT) – Graseby Omnifuse
- BSUH Trust (Royal Sussex County and Princess Royal Hospitals) – McKinley T34

3. Syringe driver guidelines best practice inclusions

The following contents has been agreed as best practice by the SCN Palliative Care Group and the Palliative Care Nurses/AHP (July 2005). Where possible, the content agreed with input from a Palliative Care Consultant, Palliative Care CNS and pharmacist have been used.

- Definitions and functions of a syringe driver
- Indications for use
- Roles and Responsibilities of the Medical Practitioner and RGN
- 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)
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- Managing site problems
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4. 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. Where possible systems need to be in place to allow lock boxes to be utilised with appropriate access to keys to unlock devices.

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

5. 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

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

6. Roles and Responsibilities

6.1: *Prescriber:*

6.1.1 In the community, the Specialist Palliative Care Consultant or CNS may recommend either verbally or in writing treatment via a syringe driver, but the GP will prescribe, monitor and supervise its' use. It may be that other prescribers write a prescription for a syringe driver to be used in the community, e.g. on discharge from an in-patient unit. A copy of the prescription should be faxed to the GP for his or her records.

6.1.2 In hospices or hospital, the prescriber must ensure written instructions are given, which includes **drug, diluents when requested by local prescription chart, dose, route, and time over 12 or 24 hours.** To minimise drug error, ranges other than those over 24 hours need to be clearly marked and should be avoided if not routine practice.

6.1.3 Under the Medicines Act 1968 the mixing of two licensed medicines, where one is not a vehicle for the administration of the other, results in a new, unlicensed product being administered. Under medicines legislation independent prescribers are not currently authorised to prescribe unlicensed medicines. However, the Medicines and Healthcare Products Regulatory Agency (MHRA) have issued a statement acknowledging that it is a long standing accepted practice within the field of palliative care to prescribe a mixture of licensed medication for administration, usually via a syringe driver and would not wish to obstruct the provision of effective pain relief to patient. Currently the MHRA is seeking advice from the Commission on human Medicines (CHM) on possible changes to the medicines legislation. In the meantime the current position is that the MHRA would not consider taking enforcement action for breaches of medicines legislation by a **Nurse or Pharmacist Independent Prescriber** engaging in the long standing practice of prescribing and administering (and providing directions to others to administer) a mixture of licensed medication via a single injection or a syringe driver unless it would be in the public interest to do so.

6.2: **Registered General Nurse (R.G.N)**

6.2.1 Each RGN is individually accountable through the NMC Code of Professional Conduct (2007) to ensure they are competent to check, set up and monitor a syringe driver. In addition, the RGN must adhere to the employer's Medicine policy on training and competence.

6.2.2 In a hospital inpatient setting - two registered nurses need to check the drugs, dosage, and the rate of delivery on the pump. In the community setting one nurse can check this and set up the driver.

6.2.3 The nurse must obtain appropriate written instructions from the prescriber. The prescription must be documented on the drug chart. This

should include **drug, diluents where indicated, dose, route, and time over 12 or 24 hours.**

6.2.4 The nurse, as a minimum, is responsible for monitoring the syringe driver four hourly (hospice and hospital), and at each visit (at least daily) in the community, documenting results on the record chart /checklist, and signing the prescription chart.

6.2.5 The nurse must use a syringe driver that is maintained and in working order and undergoes annual maintenance. (Check the date when last serviced and if over due follow policy for maintenance)

6.2.6 The serial number of the syringe pump must be documented on the Subcutaneous Syringe pump chart.

6.2.7 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.

6.2.8 As with any other drug administration, consent must be obtained (and documented) and information must be provided for the patient as per the appropriate policy of the Employing Organisation. This will include obtaining consent to any changes to the prescription during the episode of care. If the patient is unable to give consent then the law allows the practitioner to provide treatment without the patients consent, providing they are always acting in the patients best interest (Department of health 2003) The Mental Capacity Act (2007) states that anyone over 16 years of age must be assumed to be competent to make their own decisions, and that they must be given any support they need from professionals in order to do so. The individual may nominate someone to make decisions on their behalf in the event that they lose their capacity to do so. This person will have "Lasting Power of Attorney". Their role is to represent the patient's views but not to make medical decisions. Health professionals must also be aware of any guidance on consent issued by their own regulatory body e.g. NMC code of Professional conduct 2007

6.2.9 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, when and how to contact them. This should be documented.

6.2.10 Provider organisations should consider using a lock box whenever a syringe driver is in use which contains controlled drugs.

7. Advantages and disadvantages

7.1 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
- Allows staff in the community to plan visits when practical and necessary according to the patients condition, rather than being bound by frequent injections
- Maintains the patient's mobility and independence when using a portable device (note - the Graseby omnifuse is not portable)

7.2 Disadvantages

- The association with impending death that some patients and their relatives may have, seeing it as last resort
- Possible pain / inflammation at the infusion site reducing drug absorption
- The alarm system of the MS devices only alert when the plunger is obstructed or there are problems with the battery; it will not alarm if the site is not patent or the infusion too rapid. The Mckinley has an occlusion alarm.

8. Skin site rotation

You must 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.

9. Choice of cannula

9.1 Metal butterfly needles. Soft-set or Abocath may be used. Currow and Cooney (1994) found patients had fewer local reactions to Teflon-coated cannulae and Dawkins et al (2000) found that metal butterflies had a slightly lower "life" in situ.

9.2 Cannulae should be chosen taking into account the specific needs of the patient

10. Insertion of the infusion needle (Soft set or Abocath)

10.1 Remove the subcutaneous plastic cannula from its plastic guard by firmly gripping the wing and sliding it out;

10.2 Lift the white cover tab and peel it off. (do not remove the tan tab as this would remove the adhesive dressing that helps to maintain the soft-set in the correct position);

10.3 Confirm that the point of the introducer needle. The introducer is an additional reusable device to help the insertion of the softest and is extended beyond the soft cannula;

10.4 Flex the wings of each side with the thumb and middle finger and use the index finger to stabilise the top of the plastic hub;

10.5 Insert the soft-set introducer at a 90° angle with a firm, quick movement of the hand

10.6 Apply a keyhole adhesive dressing securely;

10.7 Gently withdraw the introducer needle with one hand whilst maintaining pressure on the wings with the other hand, and discard the needle.

11 Insertion of the butterfly infusion set

11.1 The cannula should be inserted after assessing the patient for the most suitable site.

11.2 A fold of skin should be lifted between thumb and forefinger to elevate the subcutaneous tissue and Insert butterfly needle at 45-degree angle. Bevel side down.

11.3 Loop the tubing around butterfly and secure with transparent adhesive dressing.

11.4 It may be appropriate to clip excess hair at site

12. Monitoring the syringe driver when in use

12.1 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 (at least every 24 hours)

12.2 The following should be noted:

- Calculate amount of infusion fluid remaining in the syringe – calculate if it is running to time. For MS devices this will be in length of fluid.
- Rate setting
- 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

12.3 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 if measuring in mms.

12.4 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)

12.5 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)

12.6 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.

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

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

13.2 The location of where patient is being transferred to needs contacted in good time to ensure they are able to maintain a sub-cutaneous infusion.

13.3 When booking transport inform the transport service that the patient needs front line. (Intermediate transport service).

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

13.5 The hospital /hospice registered nurse must communicate with the RGN in the community /care home.

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

13.7 The community/care home RGN, who must be trained and competent to use the syringe driver, needs to understand that they are fully responsible for the setting up and working order of the driver whilst being used in the patient's home or care home.

14 Carriage of drugs (community)

14.1 Drugs should not be carried in the district nurse's car unless under extreme circumstances. Relatives should be encouraged to obtain drugs from the chemist or the chemist to deliver them. In the case of discharge from hospital / hospice medication (TTA's) will be sent with patient and under the supervision of carers and/or ambulance crew.

"A person may possess and supply a controlled drug if he is conveying it to a patient for whom the drug has been prescribed". Community nurses (e.g. Macmillan Nurses and District 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 medical practitioners. Such medicines shall only be carried between the hospital pharmacy/community pharmacy and the patient's home." (Guide to the Misuse of Drugs Act 1971)

15 Disposal of controlled drugs (community)

15.1 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.

15.2 Where the patient is deceased the drugs should either:-

- a) be returned by a relative to the community pharmacy for disposal.
- b) be destroyed in the patient's home in such a way as to make the drug irretrievable or un-recoverable, with the relative's consent and witnessed by them or another nurse.
- c) If the relative refuses to comply with a) or b) report to line manager

In both cases a record should be recorded in the patient's notes. (Guidelines for the Safe and Secure Handling of Medicines, DOH 2005)

16 Managing site problems: Inform the doctor and consider:

Step 1: Further diluting the drug being infused by using a larger luer-lok syringe (20ml)

Step 2: If the site still reacts change the winged infusion cannula for a plastic or Teflon peripheral cannula. Change the line if altering the drug contents.

Step 3: Ensure needle-site vapour permeable dressing is used. If patient has allergic reaction to this product change the dressing to a sterile dry dressing.

Step 4: Changing drugs which are irritants (e.g. cyclizine, octreotide and methotrimeprizine)

Step 5: Adding dexamethasone 0.5-1mg to the syringe driver solution

Step 6: Changing to a 12-hour regime

17. DO NOT:

17.2 Get the syringe driver wet.

17.3 Apply sticky labels to the syringe driver itself or to the plastic case.

17.4 Run the syringe driver for more than 24 hours without changing the drugs.

17.5 Stop the syringe driver on discharge or transfer.

18. Maintenance and servicing

18.1 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 (refer to local decontamination policy).

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

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

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

SECTION 2

SPECIFIC GUIDANCE DEPENDING ON THE SYRINGE DRIVER IN USE

19. Graseby MS26 and MS16A

19.1 Equipment needed

- MS16A or MS26 syringe driver with cover
- Appropriate syringe (ideally 10 or 20 ml, always LuerLok™)
- Water for Injection
- Sterile Needle
- Infusion set or administration set
- Alkaline battery 9volt *and spare battery*
- Transparent adhesive dressing
- Prescribed drugs
- Drug additive label to be placed on the syringe
- Syringe driver monitoring form
- Patient's prescription chart and attached syringe driver monitoring chart
- Sharps box

19.2 How to set up

19.2.1 Check and assemble required drugs and diluent in accordance with the Employer's Medicines Policy.

19.2.2 Using water for injection as the diluent will minimise incompatibility reactions.

19.2.3 Filling and setting up a syringe to be used in a syringe driver should include *priming the line*. If the line isn't primed the infusion will finish early.

19.2.4 Measure the length of the syringe barrel against the millimetre scale on the driver.

19.2.5 Set the delivery rate. This is calculated by **dividing** the fluid length of the barrel by the required infusion time (number of *hours* or *days*).

19.2.6 Drug additive label should be applied to the tubing or barrel of the syringe. Care should be taken to avoid obscuring the syringe scale. This label should include the following information:

- Name of Patient
- Date
- Rate
- Drug, dose and time started
- Length of starting volume in mm
- Signature of Nurse

19.2.7 Prior to starting the infusion the prescription should be checked and patient identification should be carried out.

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

19.2.9 Ensure that the driver has a 9v battery inserted correctly and that it is covered by the battery cover.

19.2.10 Press and hold the start button.

MS16A	5 seconds
MS26	10 seconds

Releasing the start button will start the syringe driver. The alarm will sound and continue for 15 seconds.

19.2.11 The length of liquid within the syringe, not the volume, determines the rate of delivery.

19.2.12 Luer Lok™ syringes are the only type of syringes to be used in these drivers.

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

19.2.14 It is recommended that a 10 or 20 ml syringe be used whenever possible. Dilution of the infusion to the maximum volume will reduce adverse site reactions and incompatibility problems.

19.2.15 When checking the driver ensure the yellow light is flashing (every one second for MS16A; every 25 seconds for MS26)

19.2.16 Do Not press the boost button to deliver extra medication. It is not good practice to use the boost button to alleviate symptoms. Review the medication and give a stat dose.

19.3 Procedure

19.3.1 Before preparing and siting the syringe driver wash and thoroughly dry your hands.

19.3.2 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.

19.3.3 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

19.3.4 Considering the correct site is paramount to patient comfort

19.3.5 Check the syringe driver is set at the correct rate.

19.3.6 MS16A: Measure 48mm along the syringe as a guide to the volume of fluid that should be drawn up. Be aware that this measurement will decrease once you prime the line. MS26: draw up at least 48mm.

19.3.7 Check and draw up the prescribed medication into the syringe

19.3.8 Attach the syringe to the infusion set and use this fluid to prime the tubing.

19.3.9 Measure the length of the fluid in the syringe and record this in order to calculate the time the infusion will be completed.

19.3.10 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.

19.3.11 Secure the syringe onto the syringe driver using the rubber strap ensuring the wings of the syringe fit into the syringe slot.

19.3.12 Slide the actuator assembly using the white release button until it rests against the plunger as shown below.

19.4. How to set the rate

- The rate setting is calculated by dividing the fluid length in the barrel of the syringe by the required infusion period in hours (MS16A hourly rate syringe driver) or days (MS26 daily rate syringe driver).

Example:

MS26 daily rate syringe driver (green label)

48mm length = rate **setting of 48 mm per 24 hours**

1 day

MS16A hourly rate syringe driver (blue label)

48mm length = rate setting of 04 mm per hour

12 hours

$$\frac{48\text{mm length}}{24 \text{ hours}} = \text{rate setting of } \mathbf{02 \text{ mm per hour}}$$

- Set the rate by using the rate adjuster tool

20 McKinley T34 (BSUH)

20.1: How to set up

20.1.1 The McKinley T34 syringe pump is configured to infuse over a 24 hour Period. The syringe pump will automatically calculate the rate of administration according to the volume in the syringe.

20.1.2 Draw up the prescribed drugs into either a 10 or 20 ml syringe. For the BD Plastipak Luer Lock 10 ml syringe draw up 10mls with an approximate rate/hour of 0.42 MI/hr. For the BD Plastipak Luer Lock 20 ml syringe draw up 17mls with an approximate rate/hour of 0.71 MI/hr.

20.1.3 Attach syringe to the extension set and prime the set manually.

20.1.4 Secure the syringe onto the pump ensuring that the syringe is placed correctly in the plunger and collar sensors as per McKinley T34 instruction sheet.

20.1.5 Place the cannula subcutaneously in the patient and secure and attach the extension set to the cannula.

20.1.6 Ensure the pump has detected the correct syringe type and size. In the event that the pump gives the option of resuming a previous programme, this option must **NOT** be taken. A new programme **MUST** be set for each syringe.

20.1.7 Ensure the summary screen is checked at this point and confirm the programme to start the infusion.

20.1.8 The remaining battery life must be checked at the beginning of the infusion.

20.1.9 The syringe pump panel must be locked when not in use by a member of staff.

20.1.10 Where possible the McKinley T34 syringe pump should be secured in the locked box provided. Currently not all syringe sizes can be accommodated in a locked box. Please not locked boxes must not be sent with the patient on discharge from the hospital and that keys should be held in the controlled drug keyring on each ward.

20.1.11 When a new syringe is due to be loaded into the pump, the pump should be turned off prior to doing this to ensure that the previous programme is cleared.

20.2 How to monitor

20.2.1.1 After the initial set up or when changing the syringe the battery status will be shown as a percentage on the display panel on the front of the syringe pump.

20.2.1.2 In the event that the battery needs to be changed or an occlusion occurs MID-PROGRAMME, the infusion must be resumed once either event has been dealt with. These are the ONLY cases in which the option to resume the programme MUST be Taken. In the case where a new syringe is being loaded into the syringe pump the option to resume a programme must NOT be taken.

20.3 Admission and discharge from BSUH

20.3.1.1 If possible, patients attending BSUH should not require their syringe driver (MS16a or MS26) to be re-filled.

20.3.1.2 In exceptional circumstances, should patients attending BSUH with an MS16a or MS26 syringe driver, require their pump to be changed, then the peripheral cannula and extension set need to be changed and a McKinley T34 commenced. The drugs for administration must be prescribed on a BSUH prescription chart.

20.3.1.3 If a patient with a McKinley T34 syringe driver is discharged, the hospital will make a referral to the community nurses using the hospital to community transfer form.

20.3.1.4 Prior to discharge the ward staff must inform the community nursing team of the anticipated time of the patient arriving home. The ward staff must remove the lock box and inform the discharge library. Discharge checklist for the McKinley T34 syringe pump (Appendix 2) is completed.

20.3.1.5 The patient in discharged with the McKinley T34 with: the prescription and written authorisation, follow up medication for 24 hours (If discharged at the weekend there would need to be 3 days at least of medication including anticipatory drugs) and a jiffy bag to ensure the syringe driver is returned to BSUH.

20.3.1.6 The community nurse will visit the patient on the day of discharge, switches off and takes down the McKinley driver. Drugs remaining in the machine are discarded. Graseby MS26/MS 16a used as a replacement depending on the provider organisation's policy. Community Nurse returns the McKinley syringe driver to BSUH equipment library using the jiffy bag supplied.

21 Graseby Omnifuse CSCI (Eastbourne DGH)

21.1 How to set up

21.1.1 Check the pump for signs of contamination or damage. Switch pump on and wait while it performs a self test. The pump checks its service due date at the end of the power-up tests and if due will be displayed on screen. Send to EME with fault label attached for servicing. If the pump discovers a fault, do not use return to EME with completed fault label.

21.1.2 Draw up the drugs into a luer lok syringe with the appropriate volume of diluent. Apply the drug additive label. Attach the line to the syringe ensuring it is securely connected.

21.1.3 Prime the line ensuring there is no air present and label the line with the date then clamp.

Load the syringe into the trough with the scale clearly visible, where possible, close the barrel clamp, then please ensure the syringe make and size corresponds on screen to the one you have loaded.

- Confirm
- Press load key and when complete choose PRESET TIME infusion mode
- Select duration according to prescription
- Select volume to be infused
- Confirm
- Check the occlusion alarm level and set accordingly (Level 3)
- Reset the totals if needed
- Unclamp and PURGE the line then re-clamp (this takes up the slack in the plunger mechanism and extension set, reducing start up time before attaching to patient. Failure to purge will result in a delay of drug delivery of up to 15mins at low rates posing a risk to the patient.
- Lock cover (do not use without cover)

21.1.4 Attach the device to a clean drip stand ensuring the pump is positioned level with or no more than 36 inches/80 cm above infusion site.

21.2 Monitoring the device

21.2.1 Check that the green light is flashing (infusion indicator)

21.2.2 Check the yellow mains indicator is lit

21.2.3 Check battery indicator on screen if patient is up and about.

21.2.4 The syringe icon shows the selected occlusion alarm level and a visual guide to the current infusion pressure in the line.

21.2.5 To report a fault complete and attach an EME Fault Reporting label recording any fault codes showing on the screen of the pump (Omnifuse) and a brief explanation of what is wrong. Return the device to EME for repair.

21.2.5 If a clinical incident has occurred directly involving an infusion device, discontinue its use immediately, leaving any consumables connected to the pump intact and treat the patient. Isolate the device and do not alter the pumps settings. Where possible retain any consumables packaging and store with the device. Contact EME ext. 4900 and the Medical Devices Educators as soon as possible, leaving a message if necessary. Alternatively, if urgent assistance is required out of hours contact “on call” EME Technician based at Eastbourne via the EDGH switchboard.

21.2.6 Complete an Incident Report form as a matter of urgency recording pump’s asset number on the form for tracking and safety purposes, attach a completed fault label to the device and record ‘CLINICAL INCIDENT’ as well as a brief explanation of the incident/fault. Send a copy of the incident report direct to EME Manager to ensure prompt investigation.

21.3 Trouble shooting Omnifuse

Ensure to use the purge facility just before attaching the line to the patient	This takes up the mechanical slack thus preventing delay of delivery of drugs to the patient
Check occlusion alarm pressure setting	The most appropriate setting for subcutaneous infusion is LEVEL 3
To prevent siphonage	Ensure the pump does not exceed the critical height 80cms Ensure syringe is in trough, ear of syringe in ear slot and clamp securely in place Ensure that the patient line is clamped before loading or unloading the syringe.
To avoid over or under infusion	Always verify that the brand and size of the loaded syringe are the same as the brand and size displayed on the screen before starting an infusion
To avoid system faulting the syringe pump which will put the pump out of action.	Avoid pressing any of the keys for too long. Avoid taking the syringe out before following the unload instructions on the screen
To prevent battery failure	The yellow Mains LED is only lit when the pump is connected to the AC mains display. Keep plugged in as much as possible to prevent depleting the battery. Recharging can take up to 10hours if the batteries are completely flat.

To ensure the most accurate delivery	Change the infusion mode to Preset Time
The infusion suspends when an occlusion has occurred	Check the patient and clear the problem which caused the alarm. Restart the infusion.

21.4 Admission and discharge

21.4.1 If possible, patients attending Eastbourne DGH out patients should not require their syringe driver (MS16a or MS26) to be re-filled.

21.4.2 In exceptional circumstances, should patients attending Eastbourne DGH with an MS16a or MS26 syringe driver, require their pump to be changed, then the peripheral cannula and extension set need to be changed and an Omnifuse commenced. The drugs for administration must be prescribed on an ESHT prescription chart.

21.4.3 If a patient with a Omnifuse syringe driver is discharged, the hospital will make a referral to the community nurses using the hospital to community transfer form.

21.4.4 Prior to discharge/transfer the community nurses will be asked to bring in a MS26 for the palliative care team, district nurse liaison team or medical devices educator to set up on day of discharge, responsibility for it then lies with the team setting it up. Any other arrangement needs to be with the guidance of the palliative care team – cessation of infusions in hospital prior to discharge should be avoided if at all possible, the Graseby omnifuse can run on battery power

21.4.5 The community nurse will visit the patient within 4 hours of discharge, and set up the Graseby MS26/MS16a depending on the provider organisation's policy.

22 Review of guidelines

These guidelines should be reviewed by the SCN Palliative Care Group
January 2011

Appendix 1

PSL2 Set up and renew syringe driver/infusion device for subcutaneous use and deliver treatment

About this competence

This workforce competence covers the initiation of the subcutaneous delivery of medication using electrically powered (battery/mains) syringe drivers/infusion devices. The competence covers the selection of suitable subcutaneous sites, the preparation of the medication to be given and commencement of the treatment. It also covers the changing or refilling of syringes. This competence covers the use of syringe drivers/infusion devices for all subcutaneous treatments given to adult patients only. Paediatric services are excluded.

Links

This workforce competence links with the following dimensions and levels within the NHS Knowledge and Skills framework:

Dimension HWB7 Interventions and treatments Level:3

This workforce competence also links with following workforce competences:

- PSL3 Monitor infusions delivered subcutaneously by a syringe driver/infusion device
- PSL4 Discontinue infusions delivered subcutaneously and remove syringe driver/infusion device

Origins

This is a new workforce competence developed by Skills for Health.

Key Words and Concepts

Appropriate team member includes members of the primary, secondary and tertiary healthcare teams.

Key persons include people in the patient's life who can make a difference to their health and well-being such as family, friends, carers and others with whom the individual has a supportive relationship.

Prescription The document which describes the medication determined by a properly authorised individual for an individually named patient. It includes the medication to be used, the dose, dilution, mode of delivery and time period for delivery.

Scope

Contaminated waste

Includes:

- a) single use equipment,
- b) cannulae,
- c) dressings,
- d) protective clothing
- e) anything which could have been in contact with body fluids.

Infusion devices

Include:

- a) electrically powered (battery/mains) syringe drivers and infusion devices
- b) the appropriate syringe, line and cannula.

Patient's notes Include:

- a) medical,
- b) nursing
- c) multi-disciplinary team notes,
- d) patient held note
- e) prescription.

Reactions Include:

- a) physical,
- b) clinical and emotional changes resulting from the treatment given.

Performance criteria

You need to:

1. Review the **patient's notes** and **prescription** and identify any special instructions, investigations or items for which you need to seek advice
2. Determine whether the prescription is clinically appropriate for the patient and medication compatible according to national and/or local policy and guidelines
3. Greet, accurately identify the patient and/or **key person** and introduce yourself and any colleagues present
4. Ensure that the patient and/or key person understand their right to choose and support them in making an informed choice, as appropriate
5. Assess the patient's physical condition, their fitness for the procedure and for any allergies which may be significant to the treatment to be given and seek advice from an **appropriate team member** and/or specialist if required
6. Assess the patient's psychological and emotional state and respond appropriately
7. Inform the patient and/or key person of the procedure, the function of and, where appropriate, how to manage the syringe driver/infusion device, the treatment to be given, potential **reactions** and their management. Accurately answer any questions at a level and pace that is appropriate to:
 - their care needs, circumstances, choices and preferences;
 - their emotional state;
 - their level of understanding;
 - their culture and background;
 - their preferred way of communicating.
8. Ensure consent has been obtained, and seek permission to proceed with setting up the syringe driver/infusion device from the patient and/or key person according to national and/or local policy and guidelines
9. Ensure that you have the correct syringe driver/infusion device and equipment according to national and/or local policy and guidelines and that it is all functioning correctly
10. Check the treatment medication against the prescription, patient information and patient identity according to national and/or local policy and guidelines and with regard to:
 - name and dose of medication;
 - condition and appearance of the medication;
 - dilution and diluents;
 - expiry date/time of the medication
11. Calculate and prepare medication to be given, or use supplied pre-filled syringe, according to national and/or local policy and guidelines
12. Set the required rate for the medication administration according to syringe driver/infusion device, manufacturer's guidance and national and/or local policy and guidelines
13. Prime the line and sub-cutaneous set/cannula and label syringe and line according to national and/or local policy and guidelines
14. Attach syringe to syringe driver/infusion device according to manufacturers' instructions and national and/or local policy and guidelines
15. Position the patient for the procedure and ensure that they are comfortable
16. Agree appropriate infusion site with the patient, prepare site and insert and secure the cannula adhering to national and/or local policy and guidelines
17. Commence the infusion according to national and/or local policy and guidelines
18. Remove and dispose of all **contaminated waste** according to national and/or local policies and guidelines
19. Advise the patient and/or key person on specific necessary precautions related to the attached syringe driver/infusion device and who to contact if problems arise

20. Record details of the procedure and treatment in the patient's notes, medication charts and any other relevant documentation according to national and/or local policy and guidelines
21. Assess the patient's physical, psychological and emotional condition, their response to the treatment and any reactions or allergies which may have become apparent, and seek advice from an appropriate team member/specialist if required
22. Assess the efficacy of the medication and seek advice from an appropriate team member/specialist if required
23. Prepare medication to be given, draw up, label syringe and line, or use supplied prefilled syringe to continue infusion if syringe is due to be changed, or prescription has changed, according to national and/or local policy and guidelines
24. Ensure informed consent has been obtained if the prescription has been changed
25. Communicate the details of the procedure to the appropriate team members according to national and/or local policy and guidelines
26. Recognise when you need help and/or advice and seek this from appropriate sources.

Knowledge and understanding

You need to apply:

Legislation, Regulations and Guidelines

- K1. Working knowledge of national and/or local policy and guidelines for syringe drivers/**infusion devices** and other equipment
- K2. Working knowledge of national and/or local infection control and COSHH policies and guidelines
- K3. Working knowledge of national and/or local policy and guidelines for consent to use sub-cutaneous infusions
- K4. Working knowledge of national and/or local policies and guidelines for waste and sharps handling and disposal
- K5. Working knowledge of national and/or local policy and guidelines for patient identification
- K6. Working knowledge of national and/or local policy and guidelines for patient records, their storage and confidentiality of information
- K7. Working knowledge of the range of information which should be made available to the patient
- K8. Working knowledge of national and/or local policies and guidelines for risk management and adverse incidents

Clinical Knowledge

- K9. In-depth understanding of the symptoms associated with the relevant disease, treatment and its side effects
- K10. In-depth understanding of the safe application of subcutaneous medications for treatment, symptom control and pain management
- K11. In-depth understanding of medication calculations appropriate to procedure
- K12. In-depth understanding of national and/or local policy and guidelines for recording medication usage
- K13. In-depth understanding of medication compatibility
- K14. In-depth understanding of the manifestations of the patient's physical and emotional status
- K15. Factual knowledge of medical terminology relevant to the treatment

Technical Knowledge

- K16. In-depth understanding of the safe operation of syringe drivers/infusion devices/equipment
- K17. In-depth understanding of the importance of timely equipment fault recognition and national and/or local policy and guidelines for dealing with these
- K18. Working knowledge of equipment capabilities, limitations and routine maintenance

Communications and Information

- K19. Working knowledge of the roles and responsibilities of other team members, associated professionals and agencies

- K20. Working knowledge of the importance of clear communications
- K21. Working knowledge of the importance of patient choice and the ways in which they can be supported to make an informed choice
- K22. Working knowledge of the limits of one's own knowledge and experience and the importance of not operating beyond these.

PSL3 Monitor infusions delivered subcutaneously by a syringe driver/infusion device

About this workforce competence

This workforce competence covers the monitoring of electrically powered (battery/mains) syringe driver/infusion devices and the sites used for subcutaneous treatments. It also includes the assessment of the patient and their response to the treatment.

This competence covers the monitoring of syringe drivers/infusion devices and the sites used for all subcutaneous treatments in adults only. Paediatric services are excluded.

Links

This workforce competence links with the following dimensions and levels within the NHS Knowledge and Skills framework:

Dimension HWB7 Interventions and treatments

Level: 1

This workforce competence also links with the following workforce competences:

- PSL2 Set up and renew syringe driver/infusion device for subcutaneous use and deliver treatment
- PSL4 Discontinue infusions delivered subcutaneously and remove syringe driver/infusion device

Origins

This is a new workforce competence developed by Skills for Health.

Key Words and Concepts

Appropriate team member

includes members of the primary, secondary and tertiary healthcare teams.

Key persons include people in the patient's life who can make a difference to their health and well-being such as family, friends, carers and others with whom the individual has a supportive relationship.

Prescription The document which describes the medication determined by a properly authorised individual for an individually named patient. It includes the medication to be used, the dose, dilution, mode of delivery and time period for delivery.

Scope

Contaminated waste

Includes:

- a) single use equipment,
- b) cannulae,
- c) dressings,
- d) protective clothing
- e) anything which could have been in contact with body fluids.

Infusion devices Include:

- a) electrically powered (battery/mains) syringe drivers
- b) infusion devices
- c) the appropriate syringe, line and cannula

Patient's notes Include:

- a) medical,
- b) nursing
- c) multi-disciplinary team notes,
- d) patient held note
- e) **prescription.**

Reactions Include:

- a) physical,
- b) clinical and emotional changes resulting from the treatment given.

Performance criteria

You need to:

1. Review the **patient's notes** and identify any special instructions, investigations or items for which you need to seek advice

2. Greet, accurately identify the patient and/or **key person** and introduce yourself and any colleagues present
3. Inform the patient and/or key person of the process of monitoring the syringe driver/**infusion device** and accurately answer any questions at a level and pace that is appropriate to:
 - their care needs, circumstances, choices and preferences;
 - their emotional state;
 - their level of understanding;
 - their culture and background;
 - their preferred way of communicating
4. Assess the patient's physical, psychological and emotional condition, their response to the treatment and any **reactions** or allergies which may have become apparent, and seek advice from an **appropriate team member**/specialist if required.
5. Assess the cannula entry site and surrounding skin condition for any abnormal appearance and treat appropriately and/or seek advice from an appropriate team member/specialist if required and according to national and/or local policy and guidelines
6. Check that the cannula and infusion line are attached and positioned correctly, and that the syringe driver/infusion device is functioning correctly and delivering the required rate of drug administration according to national and/or local policy and guidelines
7. Check the contents of the syringe and infusion line for any abnormalities according to national and/or local policy and guidelines
8. Remove and dispose of all **contaminated waste** according to national and/or local policies and guidelines
9. Record the functioning of the syringe driver/infusion device according to national and/or local policy and guidelines including any action taken
10. Recognise when you need help and/or advice and seek this from appropriate sources.

Knowledge and understanding

You need to apply:

Legislation, Regulations and Guidelines

- K1. Factual knowledge of national and/or local policy and guidelines for syringe drivers/infusion devices and equipment
- K2. Factual knowledge of national and/or local infection control and COSHH policies and guidelines
- K3. Factual knowledge of national and/or local policies and guidelines for waste and sharps handling and disposal
- K4. Factual knowledge of national and/or local policy and guidelines for patient identification
- K5. Factual understanding of national and/or local policy and guidelines for patient records, their storage and confidentiality of information
- K6. Factual knowledge of the range of information which should be made available to the patient
- K7. Factual knowledge of national and/or local policies and guidelines for risk management and adverse incidents

Clinical Knowledge

- K8. Factual knowledge of the symptoms associated with the relevant disease, treatment and its side effects
- K9. Factual knowledge of the safe application of subcutaneous medications for treatment, symptom and pain relief
- K10. Factual knowledge of national and/or local policy and guidelines for recording medication usage
- K11. Factual knowledge of medication compatibility
- K12. Factual knowledge of manifestations of the patient's physical and emotional status
- K13. Factual knowledge of medical terminology relevant to the treatment

Technical Knowledge

K14. Factual knowledge of the safe operation of syringe drivers/infusion devices

K15. Factual knowledge of the importance of timely equipment fault recognition and local guidelines for dealing with these

K16. Factual knowledge of equipment capabilities, limitations and routine maintenance

Communications and Information

K17. Working knowledge of the roles and responsibilities of other team members, associated professionals and agencies

K18. Working knowledge of the importance of clear communications

K19. Working knowledge of the importance of patient choice and the ways in which they can be supported to make an informed choice

K20. Working knowledge of the limits of one's own knowledge and experience and the importance of not operating beyond these.

PSL4 Discontinue infusions delivered subcutaneously and remove syringe driver/infusion device

About this workforce competence

This workforce competence covers the removal of syringe drivers/infusion devices. It also includes the disposal of contaminated waste.

This competence covers the removal of syringe drivers/infusion devices used for subcutaneous treatments given to adults only. Paediatric services are excluded.

Links

This workforce competence links with the following dimensions and levels within the NHS Knowledge and Skills framework:

Dimension HWB7 Interventions and treatments

Level: 1

This workforce competence also links with the following workforce competences:

- PSL2 Set up and renew syringe driver/infusion device for subcutaneous use and deliver treatment
- PSL3 Monitor infusions delivered subcutaneously by a syringe driver/infusion device

Origins

This is a new workforce competence developed by Skills for Health.

Key Words and Concepts

Appropriate team member

includes members of the primary, secondary and tertiary healthcare teams.

Key persons include people in the patient's life who can make a difference to their health and well-being such as family, friends, carers and others with whom the individual has a supportive relationship.

Prescription The document which describes the medication determined by a properly authorised individual for an individually named patient. It includes the medication to be used, the dose, dilution, mode of delivery and time period for delivery.

Scope

Contaminated waste

Includes:

- a) single use equipment,
- b) cannulae,
- c) dressings,
- d) protective clothing
- e) anything which could have been in contact with body fluids.

Infusion devices Include:

- a) electrically powered (battery/mains) syringe drivers
- b) infusion devices
- c) the appropriate syringe, line and cannula

Patient's notes Include:

- a) medical,
- b) nursing
- c) multi-disciplinary team notes,
- d) patient held note
- e) prescription.

Performance criteria

You need to:

1. Review the **patient's notes** and identify any special instructions
2. Greet, accurately identify the patient and/or **key person** and introduce yourself and any colleagues present
3. Inform the patient and/or key person of the procedure and accurately answer any questions at a level and pace that is appropriate to:

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- their care needs, circumstances, choices and preferences;
 - their emotional state;
 - their level of understanding;
 - their culture and background;
 - their preferred way of communicating
4. Re-assess the patient's physical condition, their fitness for the procedure, and seek advice from an **appropriate team member** and/or specialist if required
 5. Assess the patient and/or key person's psychological and emotional state and respond appropriately
 6. Remove cannula and apply appropriate dressing to wound site if required after checking for any allergies according to national and/or local policy and guidelines
 7. Dispose of any unused drugs according to legal requirements and national and/or local policy and guidelines
 8. Remove and dispose of **contaminated waste** according to national and/or local policies and guidelines
 9. Ensure the syringe drivers/**infusion devices** are returned in accordance with national and/or local policy and guidelines when treatment is discontinued
 10. Record details of the procedure in the patient's notes, medication charts and any other relevant documentation according to national and/or local policy and guidelines
 11. Recognise when you need help and/or advice and seek this from appropriate sources.

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Knowledge and understanding

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You need to apply:

Legislation, Regulations and Guidelines

- K1. Factual knowledge of national and/or local policy and guidelines for syringe drivers/infusion devices and equipment
- K2. Factual knowledge of national and/or local infection control and COSHH policies and guidelines
- K3. Factual knowledge of national and/or local policies and guidelines for waste and sharps handling and disposal
- K4. Factual knowledge of national and/or local policy and guidelines for patient identification
- K5. Factual knowledge of national and/or local policy and guidelines for patient records, their storage and confidentiality of information
- K6. Factual knowledge of the range of information which should be made available to the patient
- K7. Factual knowledge of national and/or local policies and guidelines for risk management and adverse incidents

Clinical Knowledge

- K8. Factual knowledge of national and/or local guidelines for recording medication usage and for disposal and/or return of unused medication
- K9. Factual knowledge of manifestations of the patient's physical and emotional status
- K10. Factual knowledge of medical terminology relevant to the treatment

Technical Knowledge

- K11. Factual knowledge of the safe operation of syringe drivers/infusion devices
- K12. Factual knowledge of the importance of timely equipment fault recognition and local guidelines for dealing with these
- K13. Factual knowledge of equipment capabilities, limitations and routine maintenance
- K14. Factual knowledge of the national and/or local guidelines for the return of drivers/infusion devices

Communications and Information

- K15. Working knowledge of the roles and responsibilities of other team members, associated professionals and agencies

K16 Working knowledge of the importance of clear communications

K17. Working knowledge of the importance of patient choice and the ways in which they can be supported to make an informed choice

K18. Working knowledge of the limits of one's own knowledge and experience and the importance of not operating beyond these.

Appendix 2

Discharge checklist for the McKinley T34 Syringe Pump

This checklist is to be completed to ensure there has been liaison with district nurses (or nurse at hospital/hospice/nursing home) and the equipment library and the patient has all the required information prior to being discharged

	YES	By Whom	Date and Time
Name of District Nurse/Other nurse			
Base of District Nurse/Place of discharge eg: hospice			
1. Has the nurse been informed that:			
a. A Mckinley T34 pump is in use			
b. How it needs to be returned			
c. If the volume being delivered requires the patient to have two Graseby syringe drivers in the community			
d. That written instructions will be sent out with the patients and contact numbers for support			
2. Have the equipment library been informed:			
a. That a McKinley T34 is going into the community			
b. The name and hospital number of patient			
c. The reference number of the pump			
3. Has the McKinley T34 been removed from the locked box(as no keys kept in community)?			
4. Has a prepaid addressed (to equipment library) jiffy bag been supplied?			
5. Have the written instructions for stopping pump been supplied and sent to the District Nurses and any necessary equipment supplied?			
6. Has the patient and family been informed of the process for changing over to a different syringe driver and the patient information leaflet given?			
7. Has battery life been checked and if less than 50% then battery should be changed			
8. Has the patient been given a 3 day supply of equipment (needles cannulae syringes and occlusive dressings)?			
9. (outpatients only) Has a copy of this form been included for the attention of the District Nurse?			
10. Medication TTO's 3/7 supply to include PRN medication; and medication to cover bank holidays			