Sheffield NHS
Primary Care Trust

GUIDELINES FOR THE USE OF THE GRASEBY MS16A SYRINGE DRIVER IN PALLIATIVE CARE

October 2002

(Updated September 2007)
(Amended June 2009)

Community Nursing Guidelines

Title: Sheffield Primary Care Trusts Guidelines for the use of the Graseby MS16A Syringe Driver in Palliative Care

Date: December 2002
Reviewed and updated September 2007 (Chris Pinder-Packard)
Amended June 2009
Produced By: Helen Chapman District Nurse Team Leader/Practice Educator

Names of individuals involved in developing and endorsing the guidelines:

The guidelines were developed as part of the work of the Sheffield City Wide Syringe Driver Group in 2002 and updated in 2007 and 2009
The guidelines also duplicate those developed by the Sheffield Teaching Hospitals Syringe Driver Group with amendments as necessary to meet the needs of the Primary Care Setting. Bel Morris Palliative Pharmacist has acted as a link between the two groups.

Description of sources of information used to select the evidence on which the recommendations are based:

- All current Health & Safety Bulletins relevant to Syringe Drivers are included.
- NMC Code of Professional Conduct
- Standards for the Administration of Medicines
- Relevant Professionals as detailed in Appendix A
- See Bibliography list

Contents

INTRODUCTION

The aim of this document is to present guidelines for the safe use of the Graseby MS16A syringe driver within primary care.

These guidelines have been produced in collaboration with the Sheffield City Wide syringe driver group and as a result aim to standardise practice between primary and secondary care. This procedure for the setting up and use of the MS16A Graseby Syringe Driver was developed in conjunction with the City Wide Policy for Sheffield Teaching Hospitals NHS Trust (2002) but where appropriate has been adapted to meet the needs of the community setting.

Further clarification regarding the use of syringe drivers and training can be obtained from the Hospice At Home Team based at St Lukes Hospice, Tel: 2369911

If you are in any doubt about how to set up or use a syringe driver DO NOT attempt to use one and seek advice.

These guidelines cover the use of the Graseby MS16A Syringe Driver in Palliative Care. The use of the Syringe Driver for the administration of Apomorphine is not included in these guidelines – for Neurology patients requiring this treatment please contact the relevant Parkinson's Disease Nurse Specialist for up to date procedures.

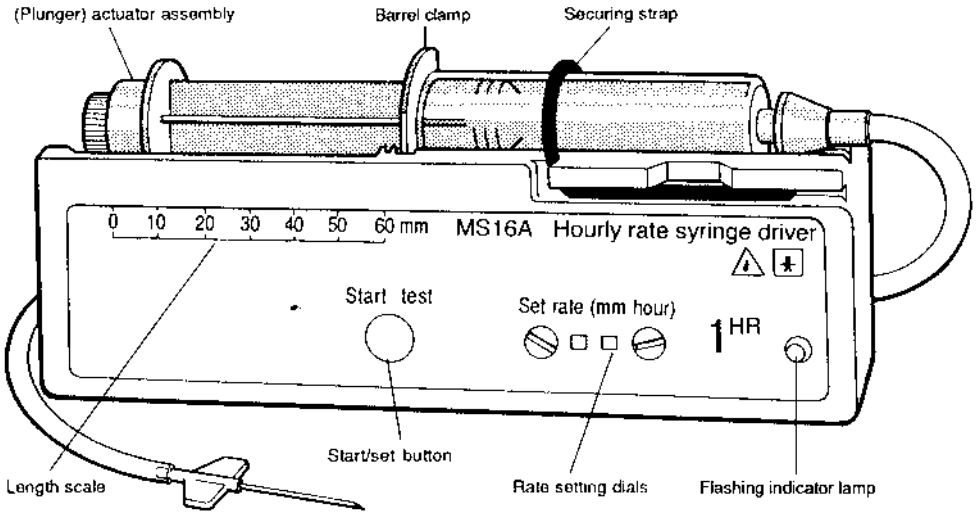
INDICATIONS FOR USE

The Graseby MS16A syringe driver is a portable, battery-operated device, for mechanically delivering drugs at a predetermined rate. The use of a syringe driver for sub-cutaneous infusion allows several symptoms to be relieved via one route of administration and avoids the need for regular intramuscular injections. The Syringe Driver operates with different syringe sizes and therefore uses **millimetres/hour not millilitres.**

In palliative care the major indications for use are:

- Where the patient is unable to swallow oral medication due to:
  - intestinal obstruction
  - nausea and vomiting
  - unconsciousness
  - dysphagia
  - confusion
  - where the patient is too weak to swallow medication

- where the rectal or transcutaneous route is inappropriate.



Only Graseby MS16A syringe drivers are used in Sheffield. All Graseby MS26 syringe drivers were withdrawn from community use in 1998 in order to reduce confusion and potential errors in drug administration.

1. NURSE TRAINING

All new starters will undertake as part of their clinical induction an 'Essential Syringe Driver Training Session' delivered by their Band 7 Team Leader and also complete a self directed study programme in the safe administration of medications. This programme will reflect the NMC Standards for the administration of Medications and will include drug calculations drawing up medications and the management of syringe drivers to include how to set up a syringe driver. The new member's competence in these areas and their undertaking of the self directed study pack will be assessed by their Band 7 Team Leader.
The Band 7 Team leaders will receive yearly updates on training.

Experienced staff will be assessed in their competency in the management of syringe drivers by way of an annual self assessment. As part of each staff members annual PDR the self assessment will be completed. (Appendix A) This self assessment is then assessed by their Band 7 Team Leader in conjunction with the competency expectation. (Appendix B)

Do not attempt to use a syringe driver if you are at all unsure as to how to set it up. (Nursing and Midwifery Council, Code of Professional Conduct, 2002).

2. CLEANING STORAGE AND MAINTENANCE OF THE GRASEBY MS16A SYRINGE DRIVER

2.1 After each patient contact the syringe driver must be thoroughly cleaned using 'alcohol wipes', this must include cleaning inside the battery holder and the syringe driver cover.
Rationale: to prevent cross infection as described in HSG (93)26

2.2 Before taking a syringe driver into a patient's home the nurse must check its maintenance and cleaning record. A 'serviced by Biomedical Engineering' label must be attached, indicating the date of service and the next due date for service. If unsure of a syringe drivers' maintenance status contact reception at Biomedical Engineering Tel: 2713150

The District Nurse Team Leader has the responsibility for ensuring that the maintenance of the syringe driver kept at their base is up to date.

2.3 All syringe drivers must be sent to the Biomedical Engineering Department for annual servicing. Before sending the syringe driver for maintenance ensure it has been thoroughly cleaned and a declaration of decontamination form is attached.

Rationale: Biomedical Engineering will not receive a syringe driver for servicing or maintenance unless a decontamination form is attached as directed by HSG (93)26.

2.4 Do not use stickers or tape on the syringe driver or it's plastic case. The only sticker present should be the Biomedical Engineering Department maintenance sticker.

Rationale: to prevent cross infection.

2.5 The nurse returning the syringe driver to storage should Ensure that there is enough equipment with it for future use:

Reset the rate on the syringe driver to **00**
9V Battery (international code 6L R61)
Infusion sets x 5
20 ml PLASTIPAK Luer lock syringes x 5
Sterile water for injections x 5
Green needles x 5
Semi-occlusive dressings x 5
Ruler

Rationale: to ensure there is adequate equipment to allow the next nurse to set up the syringe driver and time to obtain further equipment.

2.6 Batteries

Avoid using any sharp metal object to remove a battery in order to avoid damage to the machine.
A new Duracell Plus 9V battery (6LR61) should be used for each patient. (As recommended by the Sheffield Palliative Care Group)
Discard old batteries when returning the Syringe Driver to storage.

3. ADVERSE INCIDENTS

3.1 Any syringe driver involved in a medication incident should be Quarantined immediately it must not be tampered/adjusted and should be placed in a clear sealed plastic bag the nurse present must contact the Clinical Manager on call and refer to the Primary Care Trust's Incident Reporting Procedure. The Medical Devices Agency (MDA DB2003 (2)) recommends that the following information is included in the written incident report:

- The make, model and serial number of the Syringe Driver
- The rate the Syringe Driver was set at
- The Drugs in the Syringe
- The size of the Syringe
- The amount of fluid left in the syringe at the time
- Details of the incident, including time and staff involved.

SEEK IMMEDIATE MEDICAL ADVICE FOR ANY MEDICATION ERRORS

4. TRANSFER OF PATIENTS BETWEEN HOSPITAL AND COMMUNITY

4.1 Ensure that the syringe driver in use at home is a community one covered by our maintenance policy. If a patient is discharged home from hospital with a syringe driver transfer them to a community one as soon as possible. You should then contact the relevant hospital ward and arrange the safe return of the hospital syringe driver (the syringe driver should not be returned via the postal service).

4.2 If a patient is admitted to hospital with a syringe driver in situ the patient will be transferred to hospital equipment as soon as possible. The Community Nurse dealing with the patient's admission should liaise with the hospital about the safe return of the community syringe driver.

Rationale: to comply with safety and maintenance guidelines and allow the smooth continuity of patient care

5. SETTING UP THE MS16A SYRINGE DRIVER

5.1 DOCUMENTATION

ALL MEDICATION TO BE ADMINISTERED SHOULD BE ENTERED ON THE SYRINGE DRIVER DRUG RECORD CARD BY THE PRESCRIBING PRACTITIONER (COULD BE G.P OR NURSE) AND ALL NURSING PROCEDURES IN RELATION TO SYRINGE DRIVERS SHOULD BE DOCUMENTED AT EACH VISIT

5.2 A 20ml PLASTIPAK Luer lock syringe will be used in order to provide standard practice city-wide. This will help to avoid unwanted skin irritation with high drug concentrations and will reduce the time difference when the line is primed to approximately 1.5 hours (instead of 3 hours with the 10ml syringe).

5.3 In order to calculate the rate of administration and the volume of drug, certain steps should be followed:

a. Define the duration of the infusion

b. Identify the amount(s) of drug(s) to be delivered in milligrams.

c. The Graseby MS16A can only deliver in **whole** millimetres/hr i.e. one (01), two (02) with no decimals.

The general equation for rate setting is:

$$\text{Rate/hr} = \frac{\text{Fluid length}}{\text{Infusion period}}$$

5.4 Select the syringe and draw up the drug solution to the required length. Note that if the initial volume of diluent needed to dissolve any solid drug produces less than the required length, additional diluent should be drawn up to produce 48 **millimetres.**

Warning: Do not guess the volume of liquid as this may lead to drug errors. The volume represented by 48 millimetres in length will vary from syringe to syringe. Try not to think about the syringe in millilitres but about measurement in millimetres.
Always measure and check **each syringe** on the millimetre of a rule prior to use.

5.5 For a 24 hour infusion

a. Draw up the medication in a 20 ml PLASTIPAK luer lock syringe and add diluent until the fluid length is 48mm – use a rule or the measuring scale on the side of the syringe driver. **Never guess the volume of fluid needed. Different manufacturer's syringes could have different barrel sizes so try not to think about the syringe in mls but about measurement in mm.**

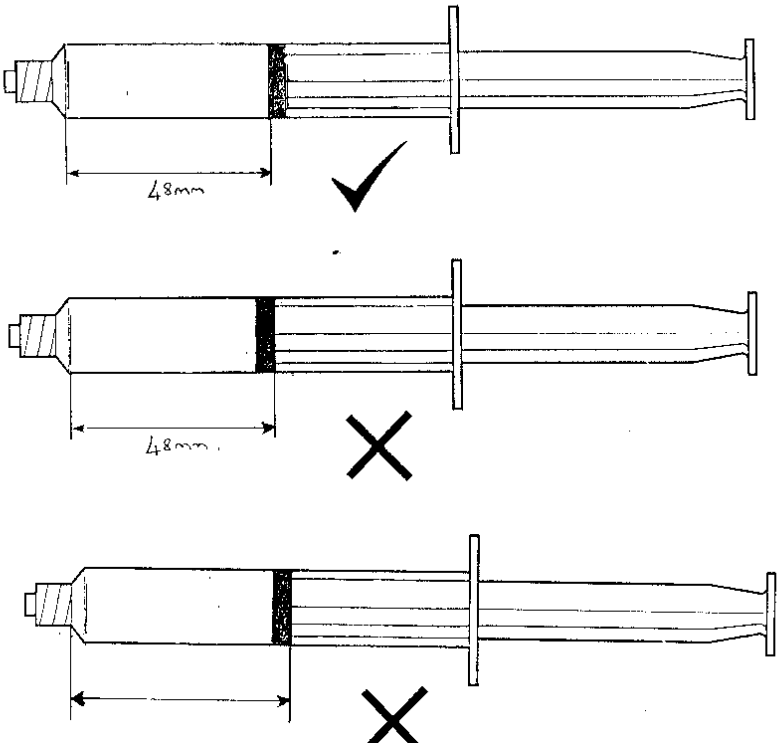
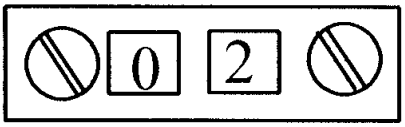


Diagram showing correct way to measure the fluid length – from the front edge of the plunger to the beginning of the barrel taper.

b. Divide the fluid length by the infusion period (24 hours)

$$\text{Rate setting} = \frac{\text{Fluid length}}{\text{Delivery time}} = \frac{48}{24 \text{ hours}} = 02\text{mm/hr}$$

c. Ensure that the rate set on the syringe driver in mm/hr is **02** so that the plunger moves by 2mm every hour.



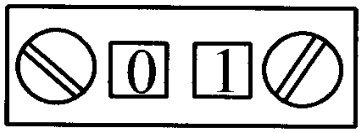
5.6 For a 48 hour infusion

a. Draw up the medication and diluent until the fluid length is 48mm.

b. Divide the fluid length by the infusion period (48 hours)

$\frac{48}{} = 1$

c. set the rate in mm/hr i.e. **01** so that the plunger moves by 1mm every hour



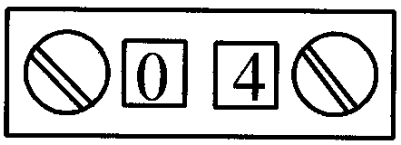
5.7 For a 12 hour infusion

a. Draw up the medication and diluent until the fluid length is 48mm.

b. Divide the fluid length by the infusion period (12 hours)

$\frac{48}{12} = 4$

c. set the rate in mm/hr i.e. **04** so that the plunger moves by 4mm every hour



5.8 Calculating the infusion duration after priming the line

If the syringe driver is set up for the first time or resited the infusion line will need to be primed. The reduction in fluid volume in the syringe after priming will mean that the syringe driver will need to be recharged earlier the following day – **the time difference will depend upon the length of the infusion line and should never be guessed.**

a. Draw up the medication and diluent to 48mm as above
Do not add extra fluid to the syringe to allow for priming the line
b. Use the plunger to gently move the fluid to the end of the butterfly needle.
c. Attach the syringe to the syringe driver and then site the butterfly

When the line has been primed measure the fluid volume left in the syringe using a ruler and divide this figure by the infusion rate (e.g. 2 if the rate is set at 02 mm/hr) this will then tell you how many hours the syringe driver will run for.

For example: Fluid volume after priming measures 46mm

$$\frac{46}{02} = 23 \text{ hours before recharging is needed}$$

Exercise to calculate rate setting (Volume length is always 48 mm)

- 1 hour
- 6 hours
- 8 hours
- 12 hours
- 24 hours
- 48 hours

Examples of rate setting
Volume length is **always** 48 mm

RATE

1 Hour $\frac{48mm}{1hr}$ =48

6 Hours $\frac{48mm}{6hr}$ =08

8 Hours $\frac{48mm}{8hr}$ =06

12 Hours $\frac{48mm}{12hr}$ =04

24 Hours $\frac{48mm}{24hr}$ =02

48 Hours $\frac{48mm}{48hr}$ =01

6. DRUG COMPATIBILITY

If you are not aware of the therapeutic use, normal dosage, side effects, precautions and contra indications of the prescribed drug seek out this information prior to administration

If you have any doubt about drug compatibility or stability, consult the Sheffield Palliative Care Formulary or contact a Palliative Care Pharmacist.

7. SUBCUTANEOUS INFUSION SITES

7.1 Suitable skin sites are:

The lateral aspects of the upper arms or thighs, the abdomen, the anterior chest wall below the clavicle and the back.

7.2 Unsuitable skin sites are:

Lymphoedematous limbs, over a bony prominence, previously irradiated areas, and near a joint. These sites either affect absorption of the drug or there is a danger of cannula displacement due to movement.

8. LABELLING OF SYRINGES

8.1 Labels should be attached to the barrel of the syringe and not to the Syringe Driver itself.

8.2 A new label should be applied every time the syringe driver is recharged.

8.3 The new label should be applied to the barrel of the syringe but should not cover the volume scale on the syringe.

8.4 The label should have the following details written on it:

- **Date & time the syringe is recharged**
- **Drugs in the syringe and dose**
- **Patient's name Date of Birth and NHS number**
- **The initial volume of fluid in the syringe.**

9. SEQUENCE OF PREPARATION OF SYRINGE DRIVER

EQUIPMENT

Syringe Driver (Graseby MS16A)
9 volt Duracell Plus battery **(a new battery should be used when setting up for each patient as recommended by Sheffield Palliative Care Services)**
PLASTIPAK Luer lock 20ml syringe
Butterfly infusion set
Transparent adhesive dressing
Drugs to be administered
Diluent
Needle for reconstituting the drug(s)
Label
Ruler
Graseby MS 16a Syringe Driver Drug Record Card

A: DRUG PREPARATION

ACTION	RATIONALE
1. Check the Syringe Driver Service status.	To ensure the Syringe Driver maintenance is up to date.
2. Insert the new battery (as recommended by Sheffield Palliative Care services) into the syringe driver ensuring positive and negative terminals are correctly lined up.	To check that the syringe driver is working prior to setting up. Correct insertion will be indicated by a squealing noise.
3. wash hands with soap and water or alcohol based hand rub	To reduce the risk of cross infection
4. Check the drug to be used with the prescription	To ensure correct drug and dosage
5. Reconstitute the drug with the prescribed diluent to give 48mm of fluid length	To produce the correct length of fluid in the syringe e.g.48mm

6. Check the rate on the pump is correct e.g. 02mm/hr for a 24 hour infusion	To ensure correct rate of drug administration
7. Complete and attach a label to the syringe barrel ensuring the plunger is visible along the length of the syringe	To comply with current safe practice

B: PRIMING THE INFUSION SET

ACTION	RATIONALE
1. Attach the butterfly infusion set to the luer lock syringe	To allow drug infusion
2. Gently depress the syringe plunger until all the infusion tubing is filled to the needle end	This removes extraneous air from the system
3. Remember to allow for a shorter infusion duration of the first infusion after initial siting or resiting	Priming the line will reduce the delivery time by approximately 1-2hours
4. Measure the fluid length in the syringe after priming and record on the Syringe Driver Record Chart.	This will allow you to calculate the time when the Syringe Driver will need recharging.

C: CONNECTING THE SYRINGE TO THE SYRINGE DRIVER

ACTION	RATIONALE
1. Slide the actuator back along the lead screw by pressing the release button on the back of the syringe driver	

2. Lay the barrel of the syringe along the grooved lines of the driver, fitting the finger grip of the syringe into the slot (see diagram 1)	
3. Secure the syringe in place using the rubber strap	To prevent movement of the syringe
4. Slide the actuator assembly along the lead screw by pressing the white release button (diagram 2) until it rests against the end of the plunger (diagram 3)	To enable the syringe driver to operate correctly

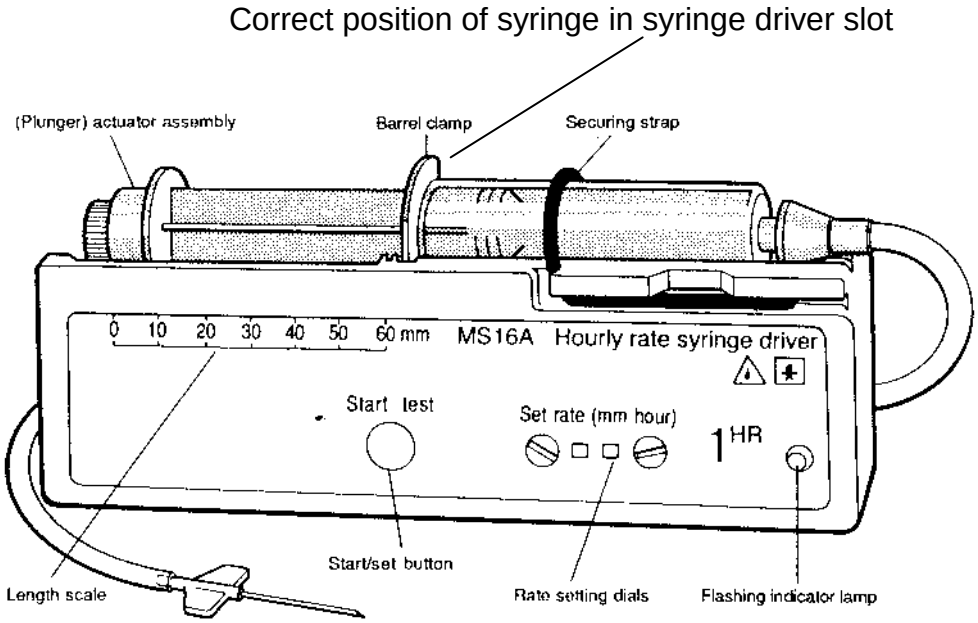
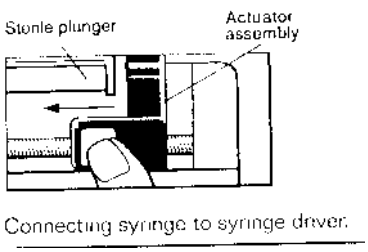
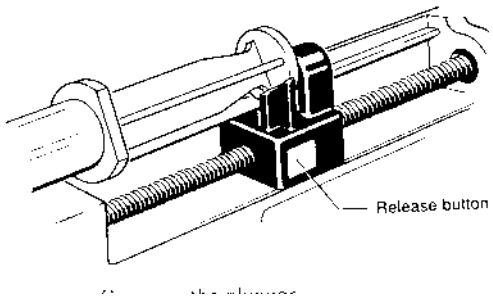


Diagram 1



Slide the actuator along the lead screw by pressing the white release button

Diagram 2



Slide the actuator assembly along the lead screw until it rests against the end of the syringe

Diagram 3

D Inserting the Butterfly needle

ACTION	RATIONALE
1. Explain the procedure to the patient (if appropriate check patient identification)	In order to obtain consent
2. Assist the patient into a comfortable position	
3. Expose the site to be used whilst maintaining the patient's dignity	
4. Wash hands with soap and water	To reduce risk of cross infection
5. Grasp the skin firmly	To elevate the subcutaneous tissue
6. Insert the butterfly needle into the skin at an angle of 45 degrees then release the grasped skin	Shallower positioning than 45 degrees may shorten the life of the site
7. Secure the butterfly and it's tubing to the skin using a transparent adhesive dressing	Transparent dressing allows observation of the infusion site and maintains the correct position of the needle
8. Always ensure the syringe is attached to the syringe driver prior to siting of the infusion	Anchoring the syringe onto the syringe driver will prevent the syphonage of medication into the patient

E: STARTING THE INFUSION

ACTION	RATIONALE
1. Press the start button to commence administration	The indicator light should flash to show a functioning battery

F: FITTING THE COVER

ACTION	RATIONALE
1. A clear cover is provided with the syringe driver	To protect the syringe and its contents when in use
2. Slide the Syringe Driver into the open end of the cover with the hole in the front to align with the start/test button.	Incorrect loading of the syringe driver will interfere with the administration of medication

G: OBSERVATIONS

ACTION	RATIONALE
1.The syringe driver should be checked at each patient contact, this should be recorded in the Nursing Notes or on the Syringe Driver Recording Sheet	To ensure the medication is being delivered as per the prescription
2. Read the fluid length left in the syringe in **mm** using a rule and record on the observation chart i.e. from the start of the syringe barrel to the start of the plunger. Check the amount infused since the last reading by subtracting the current length from the previously recorded length. To check the infusion is running correctly, divide this by the number of hours since	To ensure that the syringe driver is operating correctly and reduce the risk of over or under infusion. If the infusion rate does not match the setting and there is no problem with the line the syringe driver may have to be exchanged and checked.

the last reading. e.g. length at 2pm = 44mm length at 6pm = 36mm length infused = 8mm 8mm/4 hours = 2mm/hr	
3. The infusion site should be checked at each patient contact and when the syringe driver is refilled.	If there is evidence of inflammation (erythema or reddening) or poor absorption (a hard subcutaneous swelling) the butterfly needle will need to be resited
4. The contents of the syringe should be inspected at each patient contact.	To check for precipitation or discolouration of the medication which may indicate inactivation of the drug?
Note: The start/test button for the MS16A is not a boost button	

H: CHANGING THE SYRINGE AND BUTTERFLY INFUSION SET

ACTION	RATIONALE
1. Disconnect the syringe from the syringe driver, remove empty syringe and replace with a filled syringe as per the patient's prescription	To allow a continuous infusion of medication
2. Subcutaneous infusion site should be renewed if problems with the site arise (evidence of inflammation or poor absorption)	To maintain subcutaneous sites

I: CARE OF THE SYRINGE DRIVER

ACTION	RATIONALE
1. Do not allow the syringe driver to get wet	Syringe drivers are not waterproof and the syringe driver will be ruined.
2. If the pump is dropped damage may occur. Return to Biomedical Engineering Dept for servicing.	Internal damage may not be obvious to the user
3. If there is known or suspected damage or malfunction, take the pump out of service and return it for servicing.	

Bibliography

Graseby MS16A Syringe Driver Instruction book

Twycross, R. (1995) Symptom management in Advanced Cancer. Radcliffe Medical Press, Oxford

Dover, S. (1987) Syringe Driver in Terminal Care, British Medical Journal, 28th February, pp284

Royal Marsden Hospital Manual of Clinical Nursing Policies and Procedures

Medical Devices Agency (2003) Infusion Systems Bulletin MDA DB2003 (02)

Membership of the City Wide Syringe Driver Group
Pete Tanker Medical Devices and Decontamination Lead
Chris Pinder-Packard- Service District Manager Sheffield PCT
Helen Chapman Service District Manager Sheffield PCT
Pete Saunders -Clinical Nurse Specialist STH
Jackie Valerio-Depledge – Sheffield PCT, Evenings & Nights Service

City Wide Syringe Driver Group
Terms of Reference

The group meets every two to three months and its aims are to:

- Promote best practice
- Co-ordinate training throughout Sheffield PCT
- Monitor the impact of the above regarding adverse incidents involving syringe drivers within the community
- Review present guidelines as appropriate
- Link with STH Syringe Driver Group to ensure compatibility of practice.

Appendix A

St. Luke's Community Palliative Care Team

Graseby MS16A Syringe Driver – Self Assessment of Competence For Community Nurses & Nursing Home Staff

These competencies are compatible with Sheffield Teaching Hospitals Competencies

Surname:	Forename(s):
Job Title & Base:	

Self-verification of competence is undertaken by assessment against a range of statements. The statements are designed to indicate competence to use this device. Responsibility for use remains with the user, so if you are in any doubt regarding your competence to use the device, you should seek further education and training to achieve competence and confidence in the device use. Please discuss with the relevant individual the various strategies which may be used including, self-directed learning, coaching and formal training.

Carry out initial assessment. You must be able to answer "yes" to all the questions before considering yourself to be competent. If you do not feel either competent or confident address the learning needs and then repeat the self-assessment.

QUESTIONS to ask yourself: Are you safe using this device? Can you:	Date of Assessment:
1. Identify the component parts of the syringe driver?	Yes/No
2. Explain why the alarm sounds on fitting the battery?	Yes/No
3. Explain the safety checks undertaken prior to use?	Yes/No
4. Identify the syringe type and size that may be used with this	Yes/No
pump?	Yes/No
5. Show how the fluid length in the syringe is measured	Yes/No
correctly?	Yes/No
6. State the unit of measurement it is in and why this is	Yes/No
important?	Yes/No
7. Calculate the infusion rates for one hour, 6, 8, 12, and 24	
hours?	Yes/No
8. Explain why the infusion might finish too early or too late?	Yes/No
9. Explain why the driver might stop before all of the solution has been delivered?	Yes/No

10. Explain why it may not operate after installing the battery? 11. State the life expectancy of the battery and preferred type? 12. State the situations that will cause the driver to alarm? 13. State what you would do if the motor continues to operate but the light isn't flashing? 14. State the reasons for re-siting the cannula? 15. State the areas of the body to avoid insertion of the butterfly needle? 16. Explain how you would stop the infusion completely? 17. State the procedure with the syringe driver after a patient has died?	Yes/No Yes/No Yes/No Yes/No Yes/No

Competence Statement.

I certify that I am aware of my professional responsibility for continuing professional development and that I am accountable for my actions.

I am competent and confident to use the product without further training.

Signature: Date:

I require further training before I can use this product in a competent and confident manner.

Action plan to support learning:

Signature:

Keep this form in your personal portfolio and ensure that the MS16A Trainer for your area has a record of it.

Appendix B

Graseby MS16A

Competence Expectation
The Registered Practitioner will be able to demonstrate understanding of the use of the Graseby MS16A Syringe Pump and be able to perform administration of infusions without direct supervision.

Evidence of knowledge: The Registered Practitioner	**Type of evidence**	**Date achieved**	**Assessor (sign)**
1. Defines the type of pump utilised			
2. States the application for usage of this pump			
3. Identifies the components of the syringe driver that secure the syringe and explains their function			
4. Explains why the alarm sounds when the battery is Inserted			
5. Explains which sizes of syringe can be used and why it should be Luer-Lok			
6. States the type of unit measurement utilised			
7. Explains why this type of unit is utilised			
8. Using a sample prescription calculates the infusion rates for 1hour, 6 hours, 12 hours and 24 hours			
9. Explains what the indicator light shows			
10. Explains care and cleaning of the pump			
11. Specifies battery life			
12. Explains the possible causes of the following			
a. The infusion ended early b. The infusion ended late c. The infusion has stopped d. The syringe pump will not start e. The infusion has completed, but the motor is still running. The indicator light flashes and there is a periodic click. f. The indicator light is no longer flashing but the motor runs.			
13. States conditions, which will cause the syringe driver to alarm			

Types of Evidence Key:	**1. Direct Observation**	**2. Questioning**	**3. Work product**
4. Simulation	**5. Testimony of others**	**6. Other (please state)**	

Evidence of Performance The Registered Practitioner	**Type of evidence**	**Date achieved**	**Assessor (sign)**
1. Demonstrates pre-operational inspection			
2. Installs a battery (9Volt Alkaline PP3)			
3. Demonstrates the motor safety circuits are operating by holding down the start/test button			
4. Selects and primes syringe			
5. Label the syringe correctly			
6. Connects the syringe to the infusion line			
7. Primes the infusion line			
8. Measures the fluid length against the scale on the syringe driver or a ruler			
9. Calculates and sets the infusion rate for the required period			
10. Inserts the syringe			
11. Fits plastic cover (if utilised)			
12. Starts / stops the infusion			
13. Measures the length of fluid in the syringe whilst infusing			
14. Charts the remaining length and estimates infusion time remaining			

Registered Practitioner	Sign	Print	Date
Work based Assessor	Sign	Print	Date

Appendix C

Exercise to calculate rate setting (Volume length is always 48 mm)

- 1 hour
- 6 hours
- 8 hours
- 12 hours
- 24 hours
- 48 hours

Examples of rate setting
Volume length is always 48 mm

RATE

1 Hour $\frac{48mm}{1hr}$ =48

6 Hours $\frac{48mm}{6hr}$ =08

8 Hours $\frac{48mm}{8hr}$ =06

12 Hours $\frac{48mm}{12hr}$ =04

24 Hours $\frac{48mm}{24hr}$ =02

48 Hours $\frac{48mm}{48hr}$ =01

Appendix D

FOR SYRINGE DRIVERS USED IN THE COMMUNITY

USERS CERTIFICATE OF EQUIPMENT CONTAMINATION STATUS

Name of user:.....

Base of user: .....

Contact Tel. No: ..... Ext: .....

Equipment/Item details Syringe Driver Type..... ..... Serial Number (behind battery compartment)..... Where normally stored

USER'S DECLARATION

Before returning this equipment to us or inviting us to inspect, repair or service the equipment/item, please complete the following declaration by ticking the statement which applies to the equipment/item.

FAILURE TO OBSERVE THESE PROVISIONS MAY LEAD TO ADVERSE LEGAL CONSEQUENCES, SUCH AS CRIMINAL BREACH OF HEALTH AND SAFETY OR MEDICAL DEVICE REGULATIONS, OR EXPOSURE TO PRODUCT LIABILITY OR INSURANCE CONSEQUENCES.

Please tick relevant box: A.B.

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A	This equipment/item has been fully cleaned and decontaminated in accordance with the manufacturer's instructions. The method of decontamination was:- .... (Please provide full details) **NOTE: Equipment/items must be disassembled in accordance with the manufacturer's instructions before cleaning.**	

B	This equipment/item HAS NOT been fully decontaminated and cleaned. Please provide full details: .... NOTE: Contaminated or partially contaminated equipment/items must not be returned to us by post or courier. Please contact the manufacturer/infection control officer or appropriate regulatory body before taking any further action to discuss arrangements for the safe return of the equipment/item.	

Signed: Name (printed)

Date: Position:

Ref: HSG(93)26, Department of Health, Health Service Guidelines “Decontamination of equipment prior to inspection, service or return” (HSMO Jan. 93.)