

Policy for Subcutaneous Infusion by Syringe Driver for Adult Palliative Care

Title:	Policy for Subcutaneous Infusion by Syringe Driver for Adult Palliative Care (Overarching Policy)
Policy Reference No:	CLI/MED.04/V1.00
Summary	This 'overarching' policy defines the PCT's approach to the safe and effective management of subcutaneous infusion by syringe driver. This policy sets out the principles on which all local syringe driver policies are based.
Associated Documents	<p>Local Area Syringe Driver Policies</p> <p>Appendix A North and East Hampshire Area - Clinical Policy and Guidelines</p> <p>Appendix B South East Hampshire Area PHT Policy for Subcutaneous Infusion by Syringe Driver for Adult Palliative Care</p> <p>Appendix C West Hampshire Area- Procedure for the administration of drugs subcutaneously by portable syringe driver to adults in community hospitals and in their own homes</p>
Target Audience	All staff of the Hampshire PCT
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Approved via:	
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Signed: Chief Executive	
Further information:	<p>Steve Coopey Professional Lead District Nursing</p> <p style="text-align: center; border: 1px dashed black; padding: 5px;">Code A</p>

Document History

Document Location

This document is valid on the day it was issued

The source of the document will be found on www.hampshirepct.nhs.uk

Revision History

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		N/A draft document for new PCT	

Approvals

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Name	Signature	Title	Date of Issue	Version

Distribution

This document has been distributed to: -

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APPENDICES

- A. North and East Hampshire Area- Local Syringe Driver Policy joint Clinical Policy and Guidelines
- B. South East Hampshire Area - Local Syringe Driver Policy
- C. West Hampshire Area - Local Syringe Driver Policy
Procedure for the administration of drugs subcutaneously by portable syringe driver to adults in community hospitals and in their own homes
- D. Audit Criteria
- E. Competency checklist
- F. Competency performance criteria

EQUALITY ASSESSMENT TOOL

1. Does this policy/guideline discriminate on the grounds of:	Yes/No
• Age	No
• Race	No
• Gender	No
• Sexual Orientation	No
• Disability	No
2. Does it promote equality and enhance community relations	Yes
3. Does it influence relations between different groups?	Yes
4. Could some groups be affected differently?	No
5. Is there any evidence that some groups are affected differently?	No
6. Do we need to gather evidence?	No
7. Is the impact of the policy/guidance likely to be negative?	No
8. If so can the impact be avoided?	
9. Is it unlawful?	No
10. Can it be justified?	Yes
11. What alternatives are there to achieving the policy/guidance without the impact?	
12. Can we reduce the impact by taking different action?	

If you have identified a potential discriminatory impact of this Policy or guidance document, please refer it to the Policy Management Group together with any suggestions you have as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, contact Human Resources.

Hampshire

Primary Care Trust

POLICY DEVELOPMENT DOCUMENT CONTROL PANEL

Policy Title: Policy for Subcutaneous Infusion by Syringe Driver Policy for Adult Palliative Care			
Version Number: 8	Date of Issue:	Review Date:	
Policy Developer (Author): Steve Coopey			
Policy Developer's designation: District Nurse Professional Lead			
Policy Developer's contact details:		Code A	
File name and document pathway: (i.e. P\general\.....)			
Is this a New Policy?			Yes
This policy combines several policies from previous organisations into one			
If 'No', name of current Policy under review :			
If 'No', reason for reviewing current policy:			
Who has been involved/consulted in order to develop this Policy? Clinical learning lead, Clinical Governance Facilitator, Deputy Head of Service, District Nursing Practice Development Manager, Modern Matron			
How does the Policy link to:			
Standards for Better Health – identify which Standard:		C4b, C4D, C5B, C5c, C11a	
National Service Framework for Older People to avoid age discrimination and promote positive attitudes to older people:			
Have you considered in your Policy development the impact of your Policy on:			
Health and Safety at Work etc. Act 1974			Yes
Sex Discrimination Act 1975			Yes
Race Relations Act 1976			Yes
Human Rights Act 1998			Yes
Disability Discrimination Act 1995			Yes
Freedom of Information Act 2000			Yes
Environmental Information Regulations 2004			Yes / No / N/A
Re-use of Public Sector Information Regulations 2005			Yes / No / N/A
Race Relations (Amendment) Act 2000			Yes
Civil Contingencies Act 2005			Yes / No / N/A
Other (please specify):			
Policy Ratification	Joint Staff Committee	Professional Executive Committee	Care Services Board
Date submitted to:	N/A	N/A	11.10.07
Date re-submitted (if applicable):			
Date approved:			

Introduction and policy drivers

The Review of Care at the End of Life in Hampshire (January 2007) identified the need for staff to be properly trained and both competent and confident in using equipment e.g. syringe drivers to administer drugs. Additionally access to equipment was seen as a universally essential requirement in order to provide timely and effective care.

The policy group has also identified the need to minimize risk to the organization as a consequence of the increase in variety of syringe drivers used in health care.

This policy sets out the key principles on which all local policies/guidelines and protocols for the management of subcutaneous infusions by syringe driver are established. It supports the principles identified in Our Health, Our Care, Our Say (DH 2006) for a coordinated approach to end of life care, appropriate training for staff and timely and responsive interventions. This is also identified through Recommendation 12, ensuring the availability of nursing services and equipment, of the NICE guidelines Improving Supportive and Palliative Care for Adults with Cancer (NICE 2004).

Implementation of national policy through the End of Life Care Programme and the Liverpool Care Pathway also identify the need to ensure consistent approaches to managing medication including pain control. The Gold Standards Framework and the Cancer Plan and evidenced through Standards Better for Health set out the requirements for the trust in providing a safe and effective approach to managing syringe drivers.

Contribution List

Key individuals involved in developing the document:

Name	Designation
Lesley Atherton	Clinical learning lead
Wendy Ball	Clinical Governance Facilitator South East
Steve Coopey	Professional Lead for District Nursing
Nina Eastwood	Deputy Head of Service District Nursing
Janet Montague-Brown	Practice Development Manager
Sue Kewell	Modern Matron

1. Policy Statement

This policy provides an overarching statement of organizational intent and principles on which local policies / procedures / guidelines relating to the management of subcutaneous infusions by syringe driver are based.

2. Scope

The contents of this document apply to all employees of the Hampshire Primary Care Trust. The policy will be available to other staff independently contracted to the trust.

3. Rationale

A unified policy is required in order to ensure safe and effective practice throughout the Hampshire Primary Care Trust. The following standards detailed in Standards for Better Health are supported by this policy. Safety: C4b medical devices; C4d the safe and secure handling of medicines; Clinical and Cost Effectiveness: C5b clinical care and treatment is carried out under supervision and leadership, C5c and clinicians continuously update skills and techniques relevant to their clinical work; and Clinical Governance: C11a Staff are appropriately recruited, trained and qualified for the work they undertake. The overarching policy is supplemented by an appendix containing each area's local policy as each has been developed separately.

4. Definition of Terms

4.1 Definition of syringe driver

The syringe driver is a small, portable, battery driven pump, which continuously administers medication via a butterfly infusion set into a subcutaneous site over a given length of time.

This policy applies to the use of syringe drivers with **subcutaneous sites** only. This is the recommended route of administration of prescribed medication in palliative care for adults in the community, where a continuous infusion is required. The rationale for use is defined in the local policy.

4.2 Palliative care

Palliative care is the active holistic care of patients with advanced progressive illness. Management of pain and other symptoms and provision of psychological, social and spiritual support is paramount. The goal of palliative care is the achievement of the best quality of life for patients and their families. (NICE 2004)

4.3 Employees

Employees covered by this policy are Registered Nurses who have undertaken appropriate training as defined in the local policy.

5. Responsibilities

It is the responsibility of the Clinician to ensure they are competent and able to provide safe practice for patients. The Registered Nurse must also keep updated and be aware of and attend any mandatory training provided. The Registered Nurse must also comply with the Record Keeping Policy and NMC Guidelines for Records and Record Keeping, and the local Medicines Management Policy.

It is the responsibility of the Primary care Trust to ensure training is provided and to collect documentary evidence of the assessment of competence.

Continuing Professional Development

Individual Responsibility

All staff are personally accountable for their own professional practice and must always be prepared to justify their decisions and actions.

Failure to do this may bring individuals fitness to practice into question and endanger their registration.

All clinicians have a responsibility to ensure their skills and knowledge are up to date

- They must have the knowledge and skills for safe and effective practice without direct supervision
- They must keep their knowledge and skills up to date throughout their working life.
- They must recognise and work within the limits of their competence.
- They must take part in educational activities that maintain and develop their performance
- Must maintain a portfolio of clinical practice demonstrating:-
 - Evidence of their ongoing competence to practice
 - Evidence of formal and informal updating that will be made available to their line manager at appraisal.

Competence assessment checklists can be used as a self-assessment tool to demonstrate training needs and ongoing competency. Individuals and managers have a responsibility to revisit these competencies as part of the annual appraisal process

Managerial Responsibility

Operational managers have a responsible to ensure that their staff are appropriately trained.

Managers must ensure:-

- Staff are given time to attend appropriate training
- A record of training is maintained.
- Review evidence of ongoing competence through the appraisal process.

The Organisation will ensure:-

- Education and training is available to ensure safe practice is maintained

All trainers delivering training should ensure that the attendance register is sent to the Learning and Organizational Development Team to be entered in ESR.

6. Core Principles of Syringe Driver Management

6.1 Use of local policy/guidelines

This policy contains in Appendix A all locally developed policies/guidelines. Staff should use the appropriate local policy to the area within which they work for detailed guidance.

6.2 Rationale for syringe driver use

The decision to administer medication via a syringe driver needs to be taken by the multi-disciplinary team in consultation with patients and carers, using agreed criteria and/or indications for use.

6.3 Syringe driver equipment

6.3.1 Syringe drivers must be fit for purpose and maintained annually or as stated in the local Medical Devices Policy and Infection Control Policy.

6.3.2. Local policies/ guidelines should be read in conjunction with individual manufactures instructions and the Royal Marsden Manual of Clinical Nursing Procedures latest edition.

6.3.3 A register of syringe drivers should be held centrally and within each area

6.3.4 All necessary equipment for the setting up of a syringe driver should be kept with the driver with a list of equipment to be maintained

6.3.5 Disposal of waste

Disposal of medication including controlled drugs should be determined by the procedures set out in the local Medicines Management Policy.

6.3.6 Documentation

All documentation associated with the administration of medication should meet the requirements of NMC Guidelines for Records and Record Keeping (NMC 2005) and Code of Professional Practice (NMC 2004), in addition to the Hampshire PCT Record Keeping Policy, and local Medicines Management Policies.

6.3.7 Adverse Incident Reporting

All incidents involving administration of medication should be reported included near misses. Local incident reporting policies should be followed.

6.3.8 Syringe drivers from other settings

Whenever practicable only syringe drivers that are the property of Hampshire PCT should be used. If patients are transferred from another setting the driver should be changed to a PCT syringe driver, and the original syringe driver safely returned to the hospital of origin, as soon as possible. A local operational procedure for the management of this change is in place.

7. Training Plan

7.1 All training will follow an agreed content as defined in the local policy and assessed using the competence assessment checklist (appendix E and F).

7.2 Trainers will be competent in syringe driver management and hold a teaching or mentorship qualification.

7.3 The Learning and Organizational Development Team will provide to managers when requested an annual report on the number of registered nurses who have been registered on ESR as having undertaken syringe driver training/updates.

8. Audit

8.1 The audit criteria for the overarching syringe driver policy (Appendix D) will be supported and supplemented by local record keeping audit. Additionally the evaluation of outcomes from clinical incidents will provide an indicator of the current standard of practice in syringe driver management

9. Relevant Linking Policies

9.1 Corporate Policies

Record Management Strategy 2007

Records Management and Lifecycle Policy 2007

9.2 Local Policies

North and East Hampshire

Medicines Management

Medical Devices

Waste Management

Infection Control

South East Hampshire

Medicines Management Policy

Non-Disposable Medical Equipment Management Policy

Policy for Handling and Disposal of Clinical Waste

Control and Management of Infection

Assessment and Management of Pain Policy

West Hampshire

Medicines Management Policy

9.3 References

DOH (2006) Our Health, Our Care, Our Say, London, DOH

Health Care Commission (2006) Better Standards for Health

Macmillan Cancer Relief (20) Gold Standards Framework

The Marie Curie Palliative Care Institute (2006) Liverpool Care Pathway for the Dying Patient, Liverpool, LCP Central Team

NICE (2004) Improving Supportive and Palliative Care for Adults with Cancer, NICE.

NMC (2004) Code of Professional Practice, London, NMC

NMC (2005) Guidelines for Records and Record Keeping, London, NMC

Overview and Scrutiny Committee (2007) Review of Care at the End of Life in Hampshire, Hampshire County Council

Royal Marsden Manual of Clinical Nursing procedures 6th Edition

10 Organizational Chart

Old PCT's	Local Syringe Driver policies	New PCT areas	
Blackwater Valley and Hart	BVH and NHPCT joint Clinical Policy and Guidelines Draft June 2007	North and East Hampshire	Hampshire PCT Syringe Driver Policy for Adult Palliative Care (Overarching Policy)
North Hampshire PCT			
East Hampshire PCT	PHT Policy for Subcutaneous Infusion by Syringe Driver for Adult Palliative Care (Pan PCT Policy Dec 06)	South East Hampshire	
Fareham and Gosport PCT			
Mid Hampshire PCT	TBC		
New Forest PCT	Procedure for the admin of drugs subcutaneously by portable syringe driver to adults in community hospitals and in their own homes	Hampshire West	
Eastleigh and Test Valley PCT			

APPENDIX D

**AUDIT CRITERIA FOR OVERARCHING POLICY HAMPSHIRE PCT - Policy
for Subcutaneous infusion by Syringe Driver for adult palliative care**

Aspects of Care/Outcomes	Expected Standard	Sources of Data Collection
<p>Training/Competence Designated staff will have evidence of appropriate training</p> <p>Initial (induction programme) Annual Update/Competency Assessment</p>	100%	<p>Mandatory Training Checklist Central & Local Training Records Annual Signed Competencies</p>
<p>Use of Policy & Guidelines The local policy and associated guidelines will be accessible to all staff using syringe drivers for subcutaneous infusion via Hampshire PCT website or hard copy</p>	100%	Random Sample of designated staff
<p>Record Keeping Rationale for Syringe Driver There is documentary evidence of multi-disciplinary team assessment with patients and carers regarding any decision to administer medication via a syringe driver</p> <p>Documentation All documentation is dated, legible and signed as per record keeping policy. Prescription Chart and administration of medicines charts are fully completed following local medicines management policy</p>	100%	<p>Medical & Nursing Notes</p> <p>Charts as set in Local Policies (Appendix to Overarching Policy)</p>
<p>Syringe Driver Equipment All syringe drivers are on central and local medical equipment register Evidence of annual calibration and maintenance as per manufactures instructions</p>	100%	<p>Medical Equipment Registers Central Maintenance Records</p>

Appendix E

GRASEBY MS26 AND MS16A SYRINGE DRIVERS COMPETENCIES CHECK LIST

Developed by SWSH Cancer Network 2005

Name: Role:

Base: Expected date of completion:

Competency Statement:

Participant has demonstrated practical knowledge, theory of operation and clinical application of the Graseby MS26 and MS16A syringe drivers. Participant has awareness of the Medicines Management Policy and the Policy for Subcutaneous Infusion by Syringe Driver for Adult Palliative Care

Performance Criteria	Evaluation Method	Achieved/ Not Achieved	Date	Assessor
The Participant will be able to:				
1. Demonstrate pre-operational inspection and proper set-up of the syringe driver				
a) Define the type of pump utilised and explain the difference between an MS26 and MS16A.	Questioning			
b) Define the indications for using a syringe driver in a palliative care setting.	Questioning			
c) Identify the components on the syringe driver that secure the syringe and explain their function.	Direct observation Questioning			
d) Discuss battery type and install the battery.	Direct observation Questioning			
e) Explain why the alarm sounds when the battery is inserted.	Questioning			
f) Demonstrate the motor safety circuits are operating by holding down the start/boost button.	Direct observation			
g) Demonstrate awareness of the boost facility and its inappropriateness for use in palliative care.	Questioning			
h) Recognise that drugs for use in the syringe driver are correctly/appropriately prescribed on the medication chart, including stat. doses.	Questioning			
i) Explain which sizes and types of syringe can be used.	Direct observation Questioning			
j) Select appropriate diluent and draw up drugs as prescribed on the medication chart.	Direct observation			
k) Connect the syringe to the infusion line.	Direct observation			

Performance Criteria	Evaluation Method	Achieved/ Not Achieved	Date	Assessor
l) Prime the infusion line.	Direct observation			
m) Record drugs administered on medication chart, new medication card and patient's notes.	Direct observation Questioning			
n) Inform patient about the procedure and seek verbal consent for setting up syringe driver.	Direct observation Questioning			
2. Demonstrate the ability to operate the MS26/MS16A, complete an initial set up and a change of infusion (needle) site				
a) Measure the syringe fluid length against the scale on the syringe driver or with a ruler.	Direct observation			
b) State the type of unit measurement that is used.	Questioning			
c) Explain why this type of unit measurement is used.	Questioning			
d) MS26: Calculate and set the infusion rates for one day (24 hours). MS16A: Calculate and set the infusion rates for: 1 hour 6 hours 12 hours 24 hours.	Direct observation Questioning			
e) Place the syringe in the driver.	Direct observation			
f) Fit plastic cover and complete new medication label.	Direct observation			
g) Select appropriate site for needle insertion.	Direct observation			
h) Insert needle correctly and apply appropriate dressing.	Direct observation			
i) State process for starting the infusion/start the infusion.	Direct observation Questioning			
j) Explain what the indicator light shows.	Questioning			
k) Describe how to stop the infusion.	Questioning			

Performance Criteria	Evaluation Method	Achieved/ Not Achieved	Date	Assessor
3. Demonstrate the ability to operate the MS26/MS16A and monitor an infusion in progress				
a) Measure the length of fluid in the syringe whilst secured on the syringe driver using an appropriate rule or gauge.	Direct observation Questioning			
b) Chart the remaining fluid length and estimate the infusion time remaining.	Direct observation			
c) Check infusion (needle) site.	Direct observation Questioning			
d) Check drugs in syringe for signs of crystallisation.	Direct observation Questioning			
e) Check yellow light is flashing.	Direct observation Questioning			
4. Demonstrate the ability to operate the MS26/MS16A and change the syringe in an ongoing infusion				
a) Describe the process for changing a syringe in an ongoing infusion, noting differences from (2) above.	Questioning			
5. Review MS26 maintenance and troubleshooting considerations and take appropriate action				
a) Review care and cleaning of the syringe driver.	Questioning			
b) Review battery life and type.	Questioning			
c) Explain possible causes for the following, and how you would deal with each: The infusion ended early. The infusion has ended late. The infusion has stopped The syringe driver will not start. The infusion has completed, but the motor is still running. The indicator light still flashes and there is a periodic click. The indicator light is no longer flashing but the motor runs.	Questioning			
d) State the conditions that will cause the syringe driver to alarm.	Questioning			

Appendix F

GRASEBY MS26 AND MS16A SYRINGE DRIVERS COMPETENCIES

Developed by SWSH Cancer Network 2005

PERFORMANCE CRITERIA AND GUIDELINES FOR ASSESSORS

Performance Criteria	Intended Answer/Outcome
The Participant will be able to:	
1. Demonstrate pre-operational inspection and proper set-up of the syringe driver	
a) Define the type of pump utilised and explain the difference between an MS26 and MS16A.	The MS26 is SIMS Graseby's DAILY rate syringe driver and is intended for administrations over periods of 24 hours or more. The MS16A is the HOURLY rate syringe driver and is intended for administrations up to 24 hours.
b) Define the indications for using a syringe driver in a palliative care setting.	Defines the indications for use of the syringe driver, i.e. <ul style="list-style-type: none"> • persistent nausea and vomiting • dysphagia – intermittent or continuous oral or pharyngeal lesions • intestinal obstruction • patient too weak to swallow oral medication • diminishing level of consciousness • malabsorption of oral medication • rectal route inappropriate or unavailable.
c) Identify the components on the syringe driver that secure the syringe and explain their function.	Identifies the components and explain their function. Securing strap to retain syringe in place. Slot in case to retain syringe barrel finger grip. Function of actuator to retain syringe plunger.
d) Discuss battery type and install the battery.	Installs battery correctly. Correct type (9v alkaline – IEC 6LR61)
e) Explain why the alarm sounds when the battery is inserted.	This indicates correct battery position.
f) Demonstrate the motor safety circuits are operating by holding down the start/boost button.	Correctly demonstrates the procedure for checking that the motor safety circuits are operating and understands the reason for performing this.
g) Demonstrate awareness of the boost facility and its inappropriateness for use in palliative care.	Is aware of the boost facility and how much the plunger travels with each boost (bleeps every 0.23 mm). Explains that boost button should not be used for breakthrough analgesia/palliative care symptom management as it delivers an ineffective dose.
h) Recognise that drugs for use in the syringe driver are correctly/appropriately prescribed on the medication chart, including stat. doses.	Before administration of drugs: <ul style="list-style-type: none"> • Discusses process for checking medication chart, referring to syringe driver guidelines. • Explains need for stat doses for management of breakthrough symptoms.

Performance Criteria	Intended Answer/Outcome
i) Explain which sizes and types of syringe can be used.	Can use 10 ml, 20 ml and 30 ml syringes. Luer lok syringes are safer and prevent accidental disconnection. Refer to local policy – may specify particular make for standardisation.
j) Select appropriate diluent and draw up drugs as prescribed on the medication chart.	<p>Able to discuss the rationale for the following:</p> <ul style="list-style-type: none"> • Diluent – normal saline or water for injections. Refers to specific drug information in Trust Syringe Driver guidelines. • Discusses and demonstrates process for drawing up drugs into the syringe (order of drug; amount of diluent etc) to a 48mm length. • For patient in the home setting only, may add an extra 0.8ml of diluent (or as appropriate for stated volume of giving set) if priming the line, according to local policy.
k) Connect the syringe to the infusion line.	Performs correct procedure for connecting syringe to the infusion line.
l) Prime the infusion line.	Correctly performs the procedure for priming the infusion line – according to care setting. Refer to local Trust guidelines.
m) Record drugs administered on medication chart, new medication card and patient's notes.	Records all information on medication chart, medication label and patient's notes (or describes how this would be done). And places additive label on syringe in the hospital / within the plastic cover in community.
n) Inform patient about the procedure and seek verbal consent for setting up syringe driver.	Describes what information would be given to the patient and how consent would be sought and recorded in notes.
2. Demonstrate the ability to operate the MS26/MS16A, complete an initial set up and a change of infusion (needle) site	
a) Measure the syringe fluid length against the scale on the syringe driver or with a ruler.	Correctly measures the fluid length in the syringe against the scale.
b) State the type of unit measurement that is used.	Scale length measured in Millimetres.
c) Explain why this type of unit measurement is used.	This allows the syringe driver to accommodate different brands and sizes of syringe that have different scale lengths for the same volume.
<p>d) MS26: Calculate and set the infusion rates for one day (24 hours).</p> <p>MS16A: Calculate and set the infusion rates for: 1 hour 6 hours 12 hours 24 hours.</p>	<p>Calculates and sets the infusion rates correctly i.e.</p> <p>MS26 - <u>Scale length measured in MILLIMETRES</u> TIME IN DAYS</p> <p>Sets the correct rate for syringe measured in 2a)</p> <p>MS16A - <u>Scale length measured in MILLIMETRES</u> TIME IN HOURS</p> <p style="text-align: center;">MS16A calibrated in mm/hour</p> <p>Sets the correct rate for syringe measured in 2a)</p>

Performance Criteria	Intended Answer/Outcome
e) Place the syringe in the driver.	Inserts the syringe correctly.
f) Fit plastic cover and complete new medication label.	Fits the plastic cover correctly.
g) Select appropriate site for needle insertion.	Lists suitable sites for needle insertion
h) Insert needle correctly and apply appropriate dressing.	Inserts needle at a 45° angle using the correct procedure, and applies a vapour-permeable dressing
i) State process for starting the infusion/start the infusion.	Start the infusion, press and hold button
j) Explain what the indicator light shows.	Flashes once every 25 seconds (MS26) or once a second (MS16A) to show normal operation and battery has enough life in it to complete infusion.
k) Describe how to stop the infusion.	Knows how to stop the infusion <u>completely</u> by removing syringe or removing battery and is aware that there is no off switch.
3. Demonstrate the ability to operate the MS26/MS16A and monitor an infusion in progress	
a) Measure the length of fluid in the syringe whilst secured on the syringe driver using an appropriate rule or gauge.	Using an appropriate rule or gauge the Registered Nurse must measure the fluid length in the syringe without removing the syringe from the syringe driver.
b) Chart the remaining fluid length and estimate the infusion time remaining.	They must be able to accurately chart the fluid length remaining and assess the infusion time remaining.
c) Check infusion (needle) site.	Describes/ demonstrates assessment of skin site and takes appropriate action.
d) Check drugs in syringe for signs of crystallisation.	Able to describe appearance of crystallisation; aware of implications of this and action to be taken.
e) Check yellow light is flashing.	Flashes once every 25 seconds (MS26) or every 1 second (MS16A) to show normal operation and battery has enough life in it to complete infusion. Changes battery if needed.
f) Record all observations on the syringe driver checklist in the patient's notes (community) or on the fluid balance chart or syringe driver chart (hospital).	Accurately records observations.

Performance Criteria	Intended Answer/Outcome
4. Demonstrate the ability to operate the MS26/MS16A and change the syringe in an ongoing infusion	
a) Describe the process for changing a syringe in an ongoing infusion, noting differences from (2) above.	Procedure for filling the syringe is the same, except that no extra diluent is added to prime the line. NB Line should be changed, and driver re-sited if medication in the syringe is changed.
5. Review MS26 maintenance and troubleshooting considerations and take appropriate action	
a) Review care and cleaning of the syringe driver.	Explains procedure for care and cleaning of the syringe driver. <u>Not to be immersed in any solution.</u> Is aware of the procedure if the syringe driver does get wet.
b) Review battery life and type.	Alkaline 9V (6LR61) battery only. Battery life approximately 50 full syringes.
c) Explain possible causes for the following, and how you would deal with each: i) The infusion ended early. ii) The infusion has ended late. iii) The infusion has stopped iv) The syringe driver will not start. v) The infusion has completed, but the motor is still running. The indicator light still flashes and there is a periodic click. vi) The indicator light is no longer flashing but the motor runs.	Complete adverse incident form if appropriate. i) Delivered dose too quickly because: <ul style="list-style-type: none"> • Incorrect rate setting. • Scale length measured incorrectly. • Boost facility has been used. ii) Infusion ended late because: <ul style="list-style-type: none"> • Incorrect rate setting. • Scale length measured incorrectly. iii) The infusion stopped because: <ul style="list-style-type: none"> • Blockage in the line • Battery exhausted iv) The syringe driver will not start because: <ul style="list-style-type: none"> • Battery inserted incorrectly. • Battery exhausted. • Start/boost button not depressed sufficiently. v) The mechanism for pushing the syringe plunger has worn out and is slipping causing the click. This is therefore a fault and the unit should be sent for repair according to local policy. vi) This is because the battery <u>needs replacing</u> but there is enough power to finish the infusion.
d) State the conditions that will cause the syringe driver to alarm.	The alarm will sound if: <ul style="list-style-type: none"> • End of infusion • Blocked line

Performance Criteria	Intended Answer/Outcome
	<ul style="list-style-type: none">• Could also be the infusion conditions<ul style="list-style-type: none">- Solution too viscous- Line too narrow- Rate too fast for application• When battery is first inserted.• When Start/Boost button is held down for 10 seconds.• Syringe driver faulty.

