![Somerset Partnership NHS Foundation Trust logo]

SYRINGE DRIVER POLICY AND STANDARD OPERATING PROCEDURES IN THE USAGE OF MCKINLEY T34

To be read in conjunction with the Medicines Policy

Version:	3
Ratified by:	Senior Managers Operational Group
Date ratified:	August 2015
Title of originator/author:	Professional Lead Community Nursing
Title of responsible committee/group:	Clinical Governance Group
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Relevant Staff Group/s:	Community Hospital Inpatient Registered Nurses, District Nursing Service For Information only – Non Registered staff and Registered Nurses in the Mental Health inpatient Units

This document is available in other formats, including easy read summary versions and other languages upon request. Should you require this please contact the Equality and Diversity Lead on 01278 432000

DOCUMENT CONTROL

Reference MM/Jul/12/SDP	Version 3	Status Final	Author Professional Lead Community Nursing
Amendments	Reviewed and amended by the Medicines Management Group February 2012. Reviewed and amended by the Clinical Policy Group. V1.9 Amalgamation of SOPs for McKinley T34 and Graseby MS26 Syringe Drivers May 2012 Reviewed and amended August 2015. Graseby SOP removed		

Document objectives: This policy is primarily intended for non medical staff in Somerset Partnership NHS Foundation Trust. It aims to set out the key principles and guidance for the management of subcutaneous infusions via syringe pumps.
Intended recipients: Community Hospital Inpatient Registered Nurses, District Nursing Service. For Information only – Non Registered staff and Registered Nurses in the Mental Health inpatient Units
Committee/Group Consulted: Medicines Management Group and Clinical Policy Group
Monitoring arrangements and indicators: Medicines Management Group
Training/resource implications: For the McKinley Syringe Pump staff will receive training through an Advanced User training workshop provided by CME Medical Clinical Support Specialists. The advanced trainers will then train other members of staff.

Approving body and date	Clinical Governance Group	Date: August 2015
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Contact for review	Professional Lead Community Nursing	
Lead Director	Director of Nursing and Patient Safety	

CONTRIBUTION LIST Key individuals involved in developing the document

Name	Designation or Group
Mary Martin	Professional Lead Community Nursing
Liz Berry	Senior Nurse for Clinical Practice
Debbie Bennet	Senior District Nurse
Liz Harewood	Acting Deputy Head Pharmacist
Steve DuBois	Acting Chief Pharmacist
Amanda Smith	Head of Division West
Community Nursing Staff	Community Nursing Teams

CONTENTS

1 INTRODUCTION

1.1 This policy sets out key principles and guidance for the management of subcutaneous infusions via syringe drivers. It supports the principles identified in the paper "Our Health, Our Care, Our Say" (DH 2006) for a unified approach to end of life care, appropriate training for staff and timely and responsive interventions. The policy also supports recommendation 12 of the NICE guidance 'Improving Supportive and Palliative Care for Adults with Cancer' (NICE 2004), and supports compliance with the Rapid Response Report "Safer ambulatory syringe drivers" (NPSA 2010).

1.2 Implementation of the End of Life Care Programme has identified the need to ensure consistent approaches to managing medication including pain control. The Gold Standards Framework and the NHS Cancer Plan have furthermore set out requirements to ensure that Trusts are providing a safe and effective approach to the management of syringe drivers.

2 PURPOSE & SCOPE

2.1 This policy applies to all Somerset Partnership NHS Foundation Trust employees and is available to other staff independently contracted by the Trust.

2.2 Staff should ensure the patient is able to understand the information given to them and are able to give their informed consent. This may necessitate the use of a professional interpreter and the translation of written information (see Interpreting and Translation Policy). A capacity assessment should be considered for those patients who are unable to consent to the procedure and reference should be made to the relevant Trust policy.

2.3 The Trust acknowledges and respects the diverse needs of its patients and staff and will respect these at all times when implementing this policy. Staff will at all times be mindful of the person's protected characteristics and cultural differences which will be taken fully into account when implementing this policy to ensure the described procedure is conducted in as sensitive manner as possible which respects their privacy and dignity.

3 DUTIES AND RESPONSIBILITIES

3.1 **The Trust Board, via the Chief Executive** is responsible for ensuring the Trust has a policy to promote safe and best practice in relation to syringe drivers and there are effective and adequately resourced arrangements for the fulfilment these policy requirements.

3.2   The **Director of Nursing and Patient Safety** is responsible for overseeing the local control of and the implementation of the policy

3.3   The **Clinical Practice Team** is responsible for ensuring there is defined process for training and competency assessment relating to venepuncture within the Trust.

3.4   The **Learning and Development Team** is responsible for provision of Trust training programmes and maintaining the electronic staff record of training.

3.5   **Ward Managers and Team Leaders** are responsible for ensuring that staff who care for patients needing syringe drivers are competent and compliant with the policy.

3.6   **Registered Nurses** are responsible for ensuing they are trained and competent to provide safe practice for patients with syringe drivers.

3.7   The Registered Nurse must also keep updated and be aware of and attend all relevant mandatory training.

3.8   The Registered Nurse must also comply with and adhere to all relevant Trust Policies and undertake all competency assessments related to subcutaneous infusions via syringe drivers.

4   EXPLANATIONS OF TERMS USED

4.1   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.

4.2   **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   **Licensed Medicines** are medicines with a UK marketing authorisation.

4.4   **Unlicensed Medicines** are medicines that do not have a product license in the United Kingdom; a licence may exist elsewhere.

4.5   **Off-label medicines** are medicines with a UK marketing authorisation, which are prescribed for an unlicensed indication

5   **CORE PRINCIPLES OF SYRINGE DRIVER MANAGEMENT**

Use of local policy/guidelines

5.1   This policy contains in Appendix A, the Standard Operating Procedures for the use of McKinley T34. Staff should use this in conjunction with the following Trust Policies:

- Medicines
- Controlled Drugs
- Verification of Expected Death of Adult Patients by Registered Nurses
- Infection Prevention and Control
- Healthcare (Clinical) Waste
- Medical Devices
- Cleaning of Equipment and Decontamination

Rationale for syringe driver use

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

Syringe driver equipment

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

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

5.5   A register of syringe drivers should be held centrally and within each department.

5.6   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.

5.7   Once a syringe driver is started, the blue Just in Case box is unlikely to be large enough to hold all required medication. All anticipatory medication remaining in the home, together with any syringe driver medication, should be kept in one container.

5.8   All prescribing, whether for anticipatory medication, regular medication, or syringe driver medication must be on the same Medicines Administration Record.

5.9   The blue Just in Case box may be kept in the home, so that the laminated drug pathways, and the patient information sheet, remain available.

Disposal of waste

5.10 Disposal of medication including controlled drugs should be determined by the procedures set out in the Trust's Healthcare (Clinical) Waste Policy

Documentation

5.11 All documentation associated with the administration of medication should meet the requirements of NMC Guidelines for Record Keeping (NMC 2009) and The Code (NMC 2015), in addition to the Record Keeping and Records Management and Medicines Policy.

Unlicensed Medicines

5.12 For use of Unlicensed or off licence medicines refer to the Trust's Medicines Policy.

Adverse Incident Reporting

5.13 All medication errors or incidents including omissions should be reported as indicated in the Medicines Policy.

Syringe drivers from other settings

5.14 Whenever practicable, only syringe drivers that are the property of Somerset Partnership NHS Foundation Trust should be used. If patients are transferred from another area the driver should be changed to a Somerset Partnership NHS Foundation Trust syringe driver and the original syringe driver safely returned to the area of origin, as soon as possible.

Management of Syringe Driver After Death of Patient

5.15 Removal of syringe drivers prior to verification of death is illegal (Griffith 2004) however the syringe driver may be stopped on recognition that a patient has died. To stop the syringe driver, following the procedure outlined in the Standard Operating Procedure Appendix A of this policy.

6 TRAINING REQUIREMENTS

6.1 The Trust will work towards all staff being appropriately trained in line with the organisation's Staff MandatoryTraining Matrix (training needs analysis). All training documents referred to in this policy are accessible to staff within the Learning and Development Section of the Trust Intranet.

6.2 All training will follow an agreed content as defined in the local policy and assessed using the competence assessment checklist (Appendices B)

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

7 EQUALITY IMPACT ASSESSMENT

7.1 All relevant persons are required to comply with this document and must demonstrate sensitivity and competence in relation to the nine protected characteristics as defined by the Equality Act 2010. In addition, the Trust has identified Learning Disabilities as an additional tenth protected characteristic. If you, or any other groups, believe you are disadvantaged by anything contained in this document please contact the Equality and Diversity Lead who will then actively respond to the enquiry.

8 MONITORING COMPLIANCE AND EFFECTIVENESS

8.1 Processes of audit and monitoring effectiveness of the document will be overseen by the Medicines Management Group.

8.2 Any incidents and patient complaints will be investigated by the appropriate clinical service manager and feedback and learning will be shared with the patient, and reported via the appropriate Governance group and best practice groups.

9 COUNTER FRAUD

9.1 The Trust is committed to the NHS Protect Counter Fraud Policy – to reduce fraud in the NHS to a minimum, keep it at that level and put funds stolen by fraud back into patient care. Therefore, consideration has been given to the inclusion of guidance with regard to the potential for fraud and corruption to occur and what action should be taken in such circumstances during the development of this procedural document.

10 RELEVANT CARE QUALITY COMMISSION (CQC) REGISTRATION STANDARDS

10.1 Under the **Health and Social Care Act 2008 (Regulated Activities) Regulations 2014 (Part 3), the fundamental standards** which inform this procedural document, are set out in the following regulations:

Regulation 9:   Person-centred care
Regulation 10:   Dignity and respect
Regulation 11:   Need for consent
Regulation 12:   Safe care and treatment
Regulation 13:   Safeguarding service users from abuse and improper treatment
Regulation 15:   Premises and equipment
Regulation 16:   Receiving and acting on complaints
Regulation 17:   Good governance
Regulation 18:   Staffing
Regulation 19:   Fit and proper persons employed
Regulation 20:   Duty of candour
Regulation 20A: Requirement as to display of performance assessments.

10.2 Under the **CQC (Registration) Regulations 2009 (Part 4)** the requirements which inform this procedural document are set out in the following regulations:

Regulation 18: Notification of other incidents

10.3   Detailed guidance on meeting the requirements can be found at
http://www.cqc.org.uk/sites/default/files/20150311%20Guidance%20for%20providers%20on%20meeting%20the%20regulations%20FINAL%20FOR%20PUBLISHING.pdf

Relevant National Requirements

Our Health, Our Care, Our Say" (DH 2006)
NICE guidance 'Improving Supportive and Palliative Care for Adults with Cancer' (NICE 2004),
Rapid Response Report "Safer ambulatory syringe drivers" (NPSA 2010)
End of Life for Adults Quality Standard: Quality Standard (NICE 2011)

11   REFERENCES, ACKNOWLEDGEMENTS AND ASSOCIATED DOCUMENTS

11.1   References

Evans S. E. and Palmer A, Controlling Breakthrough Pain in Palliative Care. Nursing Standard. 13. 7. 53-54, 1998

Currow D, Cooney N, Comparison of metal versus Vialon subcutaneous catheters in a palliative care setting. Palliative Medicine 8(4) 333-6, 1994

Dawkins l. Britton D, Johnson I, Higgins B, Dean T., A Randomised trail of winged Vialon butterfly and metal butterfly needles, International Journal of Palliative Nursing. 6(3) 110-6, 2000

DOH, 'Our Health, Our Care, Our Say', 2006

Griffith R , Human rights and district nursing practice. British Journal of Community Nursing, 9(12), 535-539, 2004

Hirsch C. and Faull C., Standards for setting up and maintaining subcutaneous drug administration via a Syringe Driver. Poster presented at the Palliative Care Congress, University of Warwick, 27-29th March 2000

Mitten T., Subcutaneous drug infusions: a review of problems and solutions. International Journal of Palliative Nursing, 2001, Vol 7 No. 2. 75-85, 2001

National Institution of Clinical Excellence 'Improving Supportive and Palliative Care for Adults with Cancer' 2004

National Institution of Clinical Excellence, End of Life for Adults Quality Standard: Quality Standard, 2011

NMC, Code of Professional Conduct, Nursing and Midwifery Council, London, 2015

NMC, Standards for Medicines Management. Nursing and Midwifery Council, London, 2008

NMC, Record Keeping, Nursing and Midwifery Council, London 2009

NMC, Mixing Medicines, Nursing and Midwifery Council, London, 2010

NMC, Standards for Medicines Management, Nursing and Midwifery Council, London, 2010

NPSA, Rapid Response Report "Safer ambulatory syringe drivers" 2010

The Royal Marsden Manual for Clinical Nursing Procedures 9th Edition. 2015

Twycross et al, Palliative Care Formulary, 2nd Edition, Radcliffe Medical Press, 2002

Wilson V, Guidelines for the use of MS26 daily rate syringe driver in the community. British journal of Nursing, Vol 5, No 4, pp 162-168, 2000

www.endoflifecareforadults.nhs.uk

www.mhra.gov.uk

11.2   **Cross reference to other procedural documents**

- Cleaning of Equipment and Decontamination

- Record Keeping and Records Management

- Controlled Drugs

- Equality and Diversity

- Hand Hygiene

- Human Rights

- Infection Prevention & Control

- Medical Devices

- Medicines Policy

- Verification (by Registered Nurses) of Expected Death of Adult Patients

- Interpreting and Translation

- Standard Operating Procedure for the use of McKinley T34 Syringe Driver

- End of Life Care

All current policies and procedures are accessible in the policy section of the public website (on the home page, click on 'Policies and Procedures'). Trust Guidance is accessible to staff on the Trust Intranet.

Relevant Objective within Trust Strategy

Five year Integrated Business Plan

12   APPENDICES

12.1   For the avoidance of any doubt the appendices in this policy are to constitute part of the body of this policy and shall be treated as such.

Appendix A   Standard Operating Procedure for the Use of McKinley T34 Syringe Driver

Appendix B   Competency Assessment for McKinley T34 Syringe Driver

Appendix C   McKinley T34 Syringe Pump Patient Information Leaflet

Appendix D   Nursing Record of Syringe Driver Checks

Appendix E   Audit Criteria for Syringe Driver Policy and Guidelines in the usage of McKinley T34

Somerset Partnership **NHS**

NHS Foundation Trust

STANDARD OPERATING PROCEDURE FOR THE USE OF McKINLEY T34 SYRINGE DRIVER

DOCUMENT CONTROL

Reference Number MM/Jul/12SDPSOP	Version 3	Status Final	Authors Professional Lead Community Nursing
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Document Objectives: This policy is primarily intended for non medical staff in Somerset Partnership NHS Foundation Trust. It aims to set out the key principles and guidance for the management of subcutaneous infusions via syringe drivers and pumps.	
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1 INTRODUCTION

1.1 All health care professionals are expected to exercise professional judgement when using guidelines/procedures. Any decision to vary from this Standard Operating Procedure should be recorded in patient records, together with reason for variance and action taken.

1.2 The aim of this Standard Operating Procedure is to provide a framework for the management of McKinley T34 battery operated syringe drivers, minimising hazards and ensuring that everyone who needs to is able to use them effectively and safely.

1.3 This Standard Operating Procedure supports justification of need, clinical use, staff training and equipment management.

1.4 It should be read in conjunction with the Trust Syringe Driver Policies

2 SCOPE

2.1 Nursing staff administering medication must be registered on the Nursing and Midwifery Council (NMC).

2.2 This Standard Operating Procedure is intended to be used by all registered nurses. It is the responsibility of the nurse to ensure they remain up to date with professional issues relating to the administration of medicines in accordance with the NMC guidance and that they keep up-to-date with information on medicines in use in their clinical or home setting.

3 INDICATIONS FOR USE

3.1 The decision to administer medication via a syringe driver must be taken by the multi-disciplinary team in consultation with the patients and carers. Other methods of administration should be considered prior to choosing the parenteral route, e.g. transdermal, rectal or sublingual.

3.2 Circumstances during the palliative and terminal phase of an illness in which a syringe driver may be indicated to administer the necessary medication include:

- pain management;
- anxiety management;
- nausea and vomiting, not controllable by other means;
- dysphagia and the inability to swallow oral medication;
- intestinal obstruction;
- oral cancer which may cause difficulties in taking medication;
- oesophageal obstruction, due to internal/external compression;
- malabsorption of drugs

3.3   The following factors need to be considered when deciding to use a syringe driver for administration of medication:

3.3.1 **Benefits**

- maintains stable plasma serum levels of medication;
- usually reloaded every 24hrs;
- reduces need for repeated injections;
- does not limit mobility;
- permits appropriate control of symptoms, without toxic effects of the peaks and troughs of episodic administration

3.3.2 **Risks**

- patients may become psychologically dependent on the device;
- inflammation or infection may occur at the site of the butterfly insertion;

3.4   If a decision is made to use a syringe driver, it must be remembered that it will take some time for medication to reach therapeutic levels; therefore a loading dose will need to be considered. (Twycross et al 2002)

4   COMMUNICATING WITH PATIENTS AND CARERS

4.1.   Prior to starting a syringe driver, its use should be fully discussed with the patient and his/her family. Explanation is needed about what a syringe driver is, how it works and why its use is indicated. The benefits and risks of syringe drivers should be explained and informed consent for administration sought. (Mitten 2001).The Consent to Examination and Treatment Policy and the Consent and Capacity to Consent to Treatment gives guidance on consent.

4.2   It must be remembered that setting up a syringe driver may be routine for the clinician, but it may be a frightening new experience for patients and their carers.

4.3   Patients and carers should be given advice on the driver; this advice should be supported by written guidance. Written guidance should cover:

- name of the driver;
- how the syringe driver works;
- checking of the driver whilst in use;
- action to be taken in the event of a driver failure or fault;
- individuals to be contacted in an emergency.

4.4   Staff should ensure the patient is able to understand the information given to them and are able to give their informed consent. This may necessitate the use of a professional interpreter and the translation of written information (Interpreting and Translation Policy). A capacity assessment should be considered for those patients who are unable to consent to the procedure and reference should be made to the relevant Trust policy.

4.5   The Trust acknowledges and respects the diverse needs of its patients and staff and will respect these at all times when implementing this policy. Staff will at all times be mindful of the person's protected characteristics and cultural differences which will be taken fully into account when implementing this policy to ensure the described procedure is conducted in as sensitive manner as possible which respects their privacy and dignity.

5   SETTING UP THE MCKINLEY T34

5.1   Device Parameters

Mode of Operation	Lock On, Prime and Load
Delivery Route	Subcutaneous
Delivery Duration	24 Hours
Syringe Brands and Sizes	BD Plastipak 10mls, 20mls,30mls,50 mls (with risk assessment)
Lock Box and Keypad Lock use	Lock Box is mandatory. Keypad Lock is optional
Recommended Battery Change	30%
What to do in event of an occlusion	Change syringe and line or keep syringe and change line
Local storage, cleaning and servicing requirements	Store in a locked cupboard (take battery out). Clean with detergent wipes. Annual service

Lock On Mode of Operation

5.2   The mode of operation your pump is configured to is Lock On: the pump will deliver the syringe volume confirmed, over the fixed (locked) duration. Once a syringe is detected and confirmed, the pump calculates the ml/hr infusion rate:

$$\frac{\text{Syringe volume}}{\text{Fixed duration (24 hrs)}} = \text{ml/hour infusion rate}$$

Equipment Required

5.3   Ensure all required equipment is available, clean, in date and all packaging is visually intact.
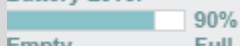
- a T34 McKinley syringe driver fit for purpose, clean and visually intact, has been serviced within its annual service date and is in a lockable plastic case with access to appropriate key

- a disposable carrying cover for mobile patients only

- PP3 9 volt alkaline battery plus 2 spare batteries (Please note that with normal use a battery is expected to last 3-5 days depending on the number of times the display function keys are accessed) the battery will be changed at 30% battery life (this will cover a 24 hour infusion)

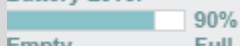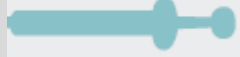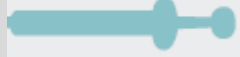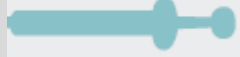- Graseby Flo – Safer winged refusion set 100cm line 1ml Vol or Soft – set or BD Saf – T- Intima with BD Pressure Tubing (150cm, vol 1.4ml. or Silhouette (110cm) The use of Soft – set, Saf – T – Intima or Silhouette will reduce the risk of metal allergies and may have a longer life insitu

- 2% Chlorhexidine Gluconate in 70% alcohol (i.e. Chloraprep)

- BD Plastipak 20ml sterile luerlock syringe would be the recommended size of choice, however size 10ml and 30ml can be used if more appropriate for prescribed medication. Current recommendations are that in most cases a 20ml luer lock affords appropriate drug dilution (thus reducing the risk of adverse drug reactions and incompatibility) whilst minimising the volume of fluid to be absorbed. Please note that a 50ml luerlock syringe may be used with the Mckinley syringe pump, however, the lockable case cannot be used when a 50ml syringe is used. The maximum volume of fluid that can be drawn up is 34mls. A 50 ml syringe MUST only be used following a documented risk assessment and liaison with local palliative care teams, pharmacist and General Practitioner

- prescribed medication required and prescribed diluents (Check the integrity of packaging and expiry dates on all medications and diluents)

- drug additive label

- occlusive dressing

- approved waste disposal container

5.4 Lock on: Prime and Load Start Up Sequence

- explain the rationale for the procedure to the patient and or carer;

- gain and document consent;

- provide the opportunity for patient/carer to express concerns/ask questions;

- provide patient syringe driver information leaflet as appropriate;

- check the prescribed medication against the prescription record;

- reflect on own clinical and pharmaceutical knowledge of the medication prescribed for use within the syringe driver or any prescribed bolus/stat doses (the registered nurse has accountability to ensure that all the medication they administer is suitable for the route intended and within an appropriate dose range and in accordance with clinical need);

- draw up the prescribed medication and diluents in the appropriate size syringe;

- it is considered best practice to make the solution as dilute as possible to reduce the likelihood of drug incompatibility and minimise site irritation;

- therefore use diluent to draw fluid volume up to:
  - o   10mls in a 10ml syringe
  - o   17ml in a 20ml syringe
  - o   22-24mls in a 30ml syringe
  - o   34 mls in a 50ml syringe

- the solution in the syringe should be clear and free from precipitation and /or crystallisation;

- attach a completed drug additive label to the syringe. All sections must be completed clearly in black ink, take care not to obscure the scale on syringe or the sensor on the barrel clamp. Under no circumstances must an unlabelled syringe be fitted to a syringe driver;

- dispose of all ampoules and additional equipment used at this stage in an approved waste disposal container and in accordance with the Healthcare (Clinical) Waste Policy.

Prime and Load

5.4.1   With prime and load the remaining contents of the syringe post priming will be delivered over the default duration (24hrs)

↑Lock On: Prime and Load Start Up Sequence
1. Manually prime the set Attach prepared syringe to the infusion set/cannula and manually prime. Priming volume of no more than 1.5 mls
2. Check the pump Ensure that the device is clean, visually intact and appropriate for the intended use.
3. Insert the battery Insert the battery correctly.

4. Power on and observe Pre-loading

a) Before powering on ensure the barrel clamp arm is down and no syringe is in place.
b) Press and hold down the ON/OFF key.
c) Observe automatic movement of the actuator (Pre-Loading).
d) Check information screens.
e) Wait until the actuator stops moving and the syringe sensor detection screen (Load Syringe) displays.

> T34
> Version NCAT XXX
> ID: (*Hospital name*)
>
> Pre-Loading
> Use NO to interrupt
>
> Occlusion XXX mmHg
> Max Rate   5ml/h
> Program Lock   ON
> Battery Status   90%
>
> Load Syringe
>
> **Load Syringe**

5. Check battery level (%)

a) Press the INFO key to display the Info menu
b) To view battery meter, press YES.
c) Check battery level.
Wait a few seconds for the "Load Syringe" screen to display.

> Info Menu
> **Battery Level**
> Select ↑↓   Pr ss YES
>
> Battery Level
> **Battery Level**
>   90%
> Empty   Full
> Emp y Full

6. Load and confirm the correct syringe

a) Align syringe to fitting areas and load the syringe into the pump.
b) View the display screen to check that the syringe brand and size displayed matches the one placed into the pump.
c) If they DO NOT match, use the ↑↓ arrow keys to scroll to the syringe brand to match, press YES to confirm. - If they match, press YES to confirm.

> Load Syringe
> **Load Syringe**
>
> 20ml BD Plastipak
> Select ↓↑, Press YES

7. Review and confirm infusion programme
a) Review the infusion\programme summery to check that the parameters displayed match the prescription.

- Visibly check if the volume in the syringe matches the volume displayed.

```
Volume      12.0ml
Duration    24.00
Rate        0.50ml
Confirm, Press
        YES
```

- Check duration displayed is the duration required for the infusion.
- Check that the rate displayed is the syringe volume confirmed divided by the duration

b) To confirm infusion, press YES

8. Connect cannula/set to patient

Site /connect the cannula/ infusion set to the patient

9.Start infusion

```
Start Infusion?
```

Press YES/START to commence the infusion when ready to do so

10. Check and confirm infusion is running

a) Visually check that the infusion running screen is visible and the green light flashed intermittently.

```
Time Remaining 23.59
Rate 0.5 ml/h
20ml BD Plastipak
```

Keypad Lock

5.5   The T34 allows all users to lock the operation of the Keypad during infusion. This function can be used to prevent tampering with the device and/or inadvertent key presses or power off. However be aware that if you use the Keypad Lock the patient will not be able to turn the power off if the alarm goes off.

To Activate the Keypad Lock:

5.6   With the pump infusing press and hold the "INFO" key until the screen displays a'progress' bar moving from left to right. Hold the key until the bar has moved completely across the screen and a beep is heard to confirm the lock has been activated.

To De–Activate the Keypad Lock

5.7   Press and hold the "INFO" key until the screen displays a 'progress' bar moving from right to left. Hold the key until the bar has moved completely across the screen and a beep is heard to confirm the lock has been de-activated.

5.7.1 Place the syringe driver in the lock box and lock in place. Replace the key in a secure place, in the community setting this should be the within the

syringe driver box unless a documented risk assessment indicates otherwise.

5.7.2   Complete all documentation referring and adhering to Records Keeping and Records Management policy, Nursing and Midwifery Council Standards relating to clinical documentation. The Code; Standards of conduct, performance and ethics for nurses and midwives (NMC 2015) &: Record keeping: Guidance for nurses and midwives (NMC 2009).

Connect cannula/set to patient

5.8   Areas suitable for subcutaneous infusion include those with a good depth of subcutaneous fat, away from joints and towards the centre of the body, (particularly if the patient's peripheral circulation is compromised). The following sites are recommended for butterfly insertion:

- anterior aspect of upper arms;
- anterior chest wall;
- anterior abdominal wall;
- anterior aspect of thigh;

5.9   **Areas to be avoided include**:

- areas of lymphodema or ascites, absorption will be restricted and breaches in skin integrity could increase risk of infection ;
- bony prominences;
- recently irradiated skin sites;
- joints and skin folds;
- sites of tumour;
- areas of broken skin;
- areas of inflammation or infection (Hirsch and Faull 2000)

For confused patients insertion into a suitable area on the patient's scapula region may be considered.

6   CHOICE OF CANNULA

6.1   It is now recommended that subcutaneous infusions are given via a plastic cannula such as the Sof-set infusion needle. The cannula should have 24G to 25G 6.2. Cannulae should be chosen taking into account the specific needs of the patient.

6.2   The practice of bending metal cannulae to 45° as a way of reducing pressure on tissues is not recommended. (Graseby 2002).

7   INSERTION OF CANNULA

7.1   Cannulae should be inserted after assessing patient for the most suitable site.

7.2   Wash hands according to the Hand Hygiene Policy and Infection Prevention and Control policy.

7.3   Prepare site using 2% wv Chlorhexidine Gluconate in 70% Isopropyl Alcohol.

7.4   Lift a fold of skin between thumb and forefinger to elevate the subcutaneous tissue and insert the cannual using the method appropriate for the cannula type selected.

7.5   Loop the cannula tubing. This should not transverse the insertion site. Secure using a semi-permeable clear dressing.

8   PUMP PROGRAMMING, RESUME OR NEW SYRINGE OR CLOSING DOWN AND REMOVING SYRINGE DRIVER

8.1   **A syringe driver and infusion set must only be removed by a registered nurse**

A syringe that is not empty must NEVER be taken off the syringe pump while connected to the patient.

8.2   **Discontinuing a syringe driver to restart a new infusion, infusion site not changed**

- if the syringe pump is to be reloaded but infusion site not changed, press the "INFO" button and record the date, time, volume infused and the volume remaining;

- press STOP to stop this infusion;

- press "OFF" to turn off the syringe pump;

- prepare syringe with drug(s) as per prescription and local policy, attach drug label;

- attach prepared syringe to the infusion set;

- power on and observe pre-loading (point 4 – 10) page 21

8.3   Discontinuing a syringe driver to restart a new infusion, infusion site changed

- if the syringe pump is to be reloaded and infusion site changed, press the "INFO" button and record the date, time, volume infused and the volume remaining

- press STOP to stop this infusion
- press "OFF" to turn off the syringe pump
- prepare syringe with drug(s) as per prescription and local policy, attach drug label
- attach prepared syringe to the infusion set and manually prime
- power on and observe pre-loading (point 4 – 10) page 21

8.4   Discontinuing a syringe driver to resume an infusion, infusion site changed

- if infusion site has tissued and the infusion site needs to be changed, press the "INFO" button and record the date, time, volume infused and the volume remaining
- press STOP to stop this infusion

- remove syringe and prime new line
- move actuator forward and reload syringe
- confirm brand and resume
- check rate is still the same but the duration will have come forward
-

8.5   Discontinuing a syringe driver when no longer required

- when the infusion is complete and the syringe is empty the pump will stop automatically and the alarm will sound
- if the infusion is to be stopped before the syringe is empty, it should be disconnected at the syringe end from the patient for safety reasons before the syringe is taken off the pump
- if the syringe pump is no longer required for the patient, press the "INFO" button and record the date, time, volume infused and the volume remaining
- press STOP to stop this infusion
- press "OFF" to turn off the syringe pump
- remove the battery from the syringe pump
- remove the cannula and cover the site with a dressing if required
- dispose of and record any medication remaining in the syringe
- dispose of all remaining waste and equipment used in accordance with Healthcare (Clinical) Waste Policy
- ensure all entries are clearly documented, and signed

8.6   Discontinuing a syringe driver when the patient dies whilst the syringe driver is running:

If there are doubts about the circumstances of the death, leave the syringe driver in place and contact the Line Manager/senior nurse for advice. The syringe driver however can be stopped. In a straightforward expected death situation the syringe driver and infusion set should be removed by a registered nurse only when death has been verified by an appropriately trained person.

- press the "INFO" button and record the date, time, volume infused and the volume remaining
- press 'STOP' to stop the infusion
- press "OFF" to turn off the syringe pump
- remove the battery from the syringe pump
- remove the cannula and cover the site with a dressing if required
- dispose of and record any medication remaining in the syringe
- dispose of all remaining waste and equipment used in accordance with Healthcare (Clinical) Waste Policy
- ensure all entries are clearly documented, and signed

9 MONITORING OF THE SYRINGE DRIVER

- check for physical damage to the pump and/or accessories
- the LCD display screen to confirm the pump is still infusing
- that the LED green light flashes intermittently (a continuous red light indicates the infusion is paused)
- to view volume to be infused (VTBI) and volume infused (VI) press INFO key once
- to view battery level press INFO key twice

9.1 In-patient

- it is the nurse's responsibility to ensure that the driver is running correctly. The driver should be checked at regular intervals throughout the day
- the nurse should use her clinical judgment to decide frequency of checks
- this can be done at same time as the drug rounds or as a separate check. It is strongly recommended that the nurse taking over the responsibility of that particular patient at the start of the shift check the syringe with the nurse that is ending their shift
- the checks on the syringe driver must be recorded on the appropriate chart, which may be located at the patient's bedside, on their prescription sheet, or in their nursing notes. The Serial number of the syringe driver needs to be documented
- if the syringe driver is likely to finish early through the line being primed or the line being re-sited it is important that this fact is handed over to the nurse of the next shift and documented on chart

9.2 Patients in a community setting

- the syringe driver should be checked to ensure it is running correctly at each visit or contact. Pump checks should be recorded on the relevant chart. It is not however necessary to visit specifically to check the syringe driver more regularly than every 24hrs, health care professionals should use their professional judgment to decide frequency of visits
- relatives and carers should be advised on how to identify any problems with the syringe driver and given contact numbers for reporting these and obtaining advice
- if the syringe driver is likely to finish early because the line was primed it is important that this fact is recorded and arrangements made for the next visit to take place at the appropriate time
- it may be necessary to reload the driver before it has completely emptied so that the time is more suitable for the patient and the service. In this case the surplus medication within the syringe should be discarded according to local Healthcare (Clinical) Waste Policy

10 MONITORING THE INFUSION SITE

10.1 The infusion site should be observed at each contact for signs of inflammation (erythema or reddening) or poor absorption (a hard subcutaneous swelling). The infusion site should be renewed if these symptoms occur. If reactions occur consider the following:

- type of medication and dilutent, ensure correct dilutent and solution;
- change the infusion butterfly to non-metallic type;
- change the type of site dressing;
- if there is more than one type of drug in the driver obtain pharmaceutical advice and consider separating and starting second driver

11 DOCUMENTATION AND RECORD KEEPING

11.1 Accurate and contemporaneous records of all medicines administered should be kept at all times. The patient medicines administration sheet will be used to record each dose, at the time given, by initialling in the appropriate place. All entries should be clear and legible.

- controlled drugs recorded in accordance with Controlled Drugs Policy
- the patient administration chart must be signed by a registered prescriber;
- patient's verbal consent obtained and documented;
- record keeping in accordance with Trust policy and RCN guidance;
- signed and dated Record of Medication sheet indicating dosage and rate of infusion in patients care plan;
- accurate record of drugs administered, dated and signed by nurse;
- patient's response to treatment recorded in the care plan;
- condition of infusion site recorded in the care plan;
- document the Syringe Driver serial number;
- use the checklist each time the syringe pump is reviewed;
- information given to patient or relative recorded in the care plan;
- report any adverse effect of drugs, problems of incompatibility

12 ORDERING AND SUPPLY OF MEDICINES

Refer to Trust Medicines Policy.

13 TRANSPORT AND STORAGE OF MEDICINES

Refer to Trust Medicines Policy.

14 DISPOSAL OF CONTROLLED DRUGS

Refer to Trust Medicines Policy.

15   EFFECTIVENESS OF THERAPY AND BREAKTHROUGH PAIN

15.1   It is important that the effectiveness of symptom control is closely monitored and recorded using a pain assessment and management tool. The nurse should reassess the patient at each visit (Wilson 2000). If breakthrough pain or other symptoms occur the patient should be offered additional medication in a suitable form, advice can be obtained from Specialist Palliative Care Nurses. It is considered good practice for pro re nata (PRN) doses to be prescribed for breakthrough pain at the same time as the daily dose. This would enable the nurse to administer the medication without delay and reduce distress for the patient (Wilson 2000).

15.2   If breakthrough analgesia is being used frequently the dosage of pain control should be reviewed with the prescribing clinician before the syringe is reloaded.

15.3   Changing the dose rate during the infusion is not recommended and would be considered poor practice within palliative care.

16   PROBLEM SOLVING

16.1   **If the Pump Locks Out for Unknown Reason:**

Press OFF

Press ON

Press Resume

Alerts and Alarms
When an ALERT is activated: The infusion continues. 2/3 beeps are heard approximately every 3 to 4 minutes. A screen message indicating the cause of the alert displays intermittently with the infusion running screen. *Alerts activate approximately 15/30 minutes prior to infusion and battery end.* When an ALARM is activated: The infusion stops. A continuous audible alarm activates (this will continue until either the YES key is pressed to mute or the problem is rectified). A screen message displays to indicate the cause of the alarm. The infusion status indicator (LED) light turns red. *Press the YES key to silence the alarm noise for 2 minutes (device is paused) and read screen prompt which indicates the cause.*
Troubleshooting

Screen	Description	Implication/action
Low Battery	Alert: Battery is almost depleted	Prepare to change battery
Program Nearly Complete	Alert: Infusion will end soon	Prepare to change syringe or turn pump off
Pump Paused Too Long	Alert: Pump has been left STOP mode (on hold) for 2 minutes	Either start the infusion, continue pause or turn the pump off
End Battery	Alert: Battery is depleted	Change battery
End Program/Syringe	Alarm: Infusion is complete	Close down or start new infusion
Syringe Displace, Check Syringe	Alarm: One or more of the syringe detection sensors is not detecting	Check screen messages for assistance Check the syringe and re-seat as necessary
Occlusion Check Line & Syringe	Alarm: Pt access device is either blocked, occluded, clamped or kinked	Flush/replace access device, release the clamp or un-kink the set

Technical problem/error and failure identification.

Two examples of system failure screen messages are shown here:

System Error.
Press & Hold
INFO for Details
If problem persists
send pump for
service

ERROR. Start-
up Mot-Mov
Fail, If problem
persists send
pump for service.

The pump alarms if an internal system fault has been detected and the unit will be inoperative, screen information and user prompts will vary, depending on the cause of the fault.

- Power the pump off and then power on again, this may rectify the problem.
- If the problem cannot be rectified: Power the pump off and remove from patient use.

Follow local policy and/or contact your authorised Medical engineering Department for advice if necessary. (If possible, record the code number (if available) and a summary of the fault.

16.2   **Alarm Activated in Patient's Homes**

If you are not able to get the patient straight away you can either:

- tell the patient to mute the pump by pressing the green YES key. This will silence the alarm noise for 2 minutes (device is paused);

- or you can tell the patient to press the red STOP key and then power on/off key;

- or you can tell the patient to remove the battery

On visiting the patient:

Power on

Check screen message display to indicate cause of alarm

Follow resume or new syringe procedure

17   MAINTENANCE AND REPAIR OF THE DRIVER

17.1   All syringe drivers should be included on the Datix Register as per the Medical Devices policy.

17.2   Planned maintenance should be out carried annually. It is the responsibility of the user to ensure that any device to be used has been serviced in accordance with the Trust and manufacturers guidelines.

17.3   The driver must be kept dry at all times. Where possible, syringe drivers will be kept in a plastic container.

17.4   Syringe drivers should be wiped clean with detergent wipes

Warning:

- cleaning with organic solvents, e.g. surgical spirit, or abrasive cleaners, may damage some of the plastic parts;
- never dip or immerse the syringe driver in any liquid or try to sterilise it with steam or gas (Graseby 2002)

17.5   If there is any uncertainty about the functioning of the driver or any obvious damage it should be withdrawn from use immediately and advice on further action sought from the appropriate equipment maintenance department.

17.6   Any equipment that is sent to the equipment maintenance department should have its decontamination status label attached in line with the Cleaning of Equipment and Decontamination Policy.

17.7   Appropriate action will be taken in response to any MDA Safety Warnings or Medical/Clinical Bulletins, appertaining to syringe drivers.

18   ADVERSE INCIDENTS

18.1   All adverse incidents or near misses involving the use of syringe drivers should be reported and managed as described in the DATIX Untoward Events Reporting policy.

19   MONITORING OF COMPLIANCE WITH STANDARD OPERATING PROCEDURE

19.1   The Continuous Professional Development of staff will be maintained by the Professional Lead, Hospital Matron, District Nurse or Ward Sister.

19.2   Adverse incidents are monitored and any trends identified and reported to the Medical Devices Committee

20   AUDIT

20.1   The audit criteria for the overarching syringe driver policy will be supported and supplemented by a local clinical 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 (Appendix G).

COMPETENCIES FOR McKINLEY T34 SYRINGE DRIVER

The competencies are to be used in conjunction with:

- NMC (2008) The Code: standards for conduct; performance and ethics for nurses and midwives
- NMC (2010) Standards for Medicines Management
- Royal Marsden Manual of Nursing Procedures (seventh edition) 2008
- RCN (2005) Standards for Infusion Therapy, 2005 (updated June 07)
- Somerset Partnership Policies:
  - o Medicines Policy
  - o Infection Control Policy
  - o Assessing Competency in Clinical

The purpose of these competencies is to clarify the knowledge and skills expected of practitioners, to ensure safe practice in the use of the McKinley T34 Syringe Driver

The self–rating scale is to be used by the individual practitioner for self assessment of present performance during supervised practice, and to help identify learning needs. Their line manager, or other experienced practitioner, must then assess these skills and sign to confirm competency.

Key for Self-Assessment

1 = No knowledge/experience
2 = Some knowledge/experience
3 = Competent
4 = Competent with some experience
5 = Competent, experienced and able to teach others

ASSESSMENT OF COMPETENCE FOR MCKINLEY T34 SYRINGE DRIVER

I confirm that I have self-assessed as competent in the use of the McKinley T34 Syringe Driver as below:

Practitioner Name: ……………………………………………

Practitioner Qualification: ……………………………………………

Practitioner Signature: ……………………………   Date: ....………

I confirm that I have assessed the named practitioner above as competent to perform the above skill.

Name and Title: ……………………………………………

Signature: ……………………………   Date: ……………….

Upon successful completion of your assessment of competency please send a copy of this page to:

Training and Development Department
NHS Somerset
Priory House
Glastonbury Road
Wells
BA5 1XL

A record of your competency will be kept on your electronic staff record.

KNOWLEDGE and SKILLS for McKinley T34 Syringe Driver	Self Assessment			Formal Assessment	
	Score	Tick	Date and Comments	Signature	Date and Comments
1 Demonstrate knowledge and understanding of the indications for the use of a syringe driver based on the clinical condition of the patient and in agreement with the prescriber	1 2 3 4 5				
2 Demonstrate knowledge and understanding of the advantages and disadvantages of using a syringe driver	1 2 3 4 5				
3 Demonstrate an understanding of informed consent and obtains and documents clients consent to set up the syringe driver.	1 2 3 4 5				
4 Demonstrate knowledge and understanding of Trust policy and guidance with regard to mental capacity and ability to be able to apply this to the setting up of a T34 McKinley syringe driver.	1 2 3 4 5				
5 Demonstrate the safe prescribing, handling, supply, storage, administration and disposal of medicines by adhering to Trust Medicines Management Policy and associated standard operating procedures.	1 2 3 4 5				
6 Demonstrate clinical and pharmaceutical knowledge of the medication prescribed for use within the syringe driver or any prescribed bolus/stat doses.	1 2 3 4 5				
7 Demonstrate knowledge and understanding of the action to take when there is a medication error, Incident or near miss.	1 2 3 4 5				

KNOWLEDGE and SKILLS for McKinley T34 Syringe Driver	Self Assessment			Formal Assessment	
	Score	Tick	Date and Comments	Signature	Date and Comments
8 Demonstrate required safety checks, ensuring the T34 McKinley syringe driver is clean, visually intact, in working order and that it is asset tagged and has been serviced within the last year.	1 2 3 4 5				
9 Demonstrates understanding of appropriate equipment required e.g. correct syringe size, needle free infusion device and infusion lines and that these are appropriate and compatible for the T34 McKinley syringe driver and the drugs prescribed.	1 2 3 4 5				
10 Demonstrate appropriate infusion site selection and safe needle free cannula insertion adhering to Trust infection control policy and guidance.	1 2 3 4 5				
11 Demonstrate the knowledge, understanding and skill in the preparation, setting up, monitoring and closing down of the T34 McKinley syringe driver. Adhere to the Trust Policy for the administration of subcutaneous medication via the T34 syringe driver	1 2 3 4 5				
12 Demonstrate ability to clean/decontaminate and store the device by adhering to Trust Infection Control policy and manufacturer instructions	1 2 3 4 5				
13 Demonstrate the ability to recognise and resolve trouble shooting problems encountered during the infusion. Responds appropriately to the device alarms	1 2 3 4 5				
14 Demonstrate understanding and knowledge of monitoring for client symptom control	1 2 3 4 5				

If any of the following happen <u>you must </u>let the nurse know as soon as possible:

- The pump gets wet
- The pump is dropped
- The colour of the medicines in the tubing or syringe has changed
- There is cloudiness or there are bits in the tubing or the syringe
- The skin around the cannula is red, swollen, or sore
- Liquid leaks where the cannula goes into the skin
- Cannula has fallen out
- Tubing is not connected to the cannula
- The alarm sounds.

If you are at home, phone the community nurse or the Out of Hours Service as soon as possible.

Useful contact details:

Community Nurse:

Out-Of-Hours Service:

GP:

Other:

Somerset Partnership **NHS**

NHS Foundation Trust

The McKinley T34 Syringe Pump

A guide for patients and carers

What is a McKinley T34 syringe pump?

This is a small battery pump with a syringe that has your medicines in it. The medicines are given through a cannula which is put into the fatty layer under the skin, and are then absorbed into your body. The pump will deliver your medicine slowly over 24 hours. The pump can be used to give you one, two, or three medicines.

Why do I need a McKinley T34 syringe pump?

Using a pump does not mean that your medicines have stopped working or are not strong enough. It's just that sometimes it is easier for you to be given your medicines this way and your nurse will tell you why in more detail. Two common reasons are listed below.

It may be because you have been feeling sick or have been sick, and find it hard to keep your medicines down. Medicines to stop you being sick can be given by the pump at the same time as other medicines to help with things such as pain. Once you have stopped being sick you might be able to go back to swallowing medicines.

It may be because you cannot swallow or absorb medicines given by mouth. The pump gives you the medicines you need in a different way, and means that you do not need a lot of injections.

Living with your McKinley T34 syringe pump

A nurse will check regularly to see how you are. He or she will check the pump and also check that the skin around the cannula is not red, swollen or sore. If you are at home the nurse will do the checks when they visit. You or the person who looks after you may be asked if either of you would like to do the checks. The nurse will tell you exactly what to do.

A nurse will put new medicine(s) into the syringe every 24 hours.

Sometimes you may need to take some other medicines even though you have a pump. If you are at home and are able to swallow medicines, make sure you have enough tablets, capsules, or liquids to take should you need to take them for pain, sickness, or anxiety. Let the nurse know if you have had to take any medicines that are not in your pump.

You should keep the pump and the cannula site dry. If you drop the pump into water, you must contact the nurse as soon as possible, as you will need a new syringe pump.

You should not let the syringe be exposed to direct sunlight.

You should not put the pump near anything hot, like a heat pad, electric blanket, or hot water bottle.

You can go out and about with the pump, as it is small enough to be put into a pouch that can be worn as a shoulder bag.

If you drive you should ask the nurse if the medicines in the pump will affect your driving.

Try to keep mobile phones that are switched on about an arm's length away, as they may affect the way the pump works.

How do I know that my McKinley T34 syringe pump is working?

The light above the 'ON/OFF' button flashes green every 64 seconds. If it turns red, there is a problem with the pump and you should contact the nurse as soon as possible.

Your nurse will discuss with you what to do if the alarm sounds.

NURSING RECORD OF SYRINGE DRIVER CHECKS MADE   **APPENDIX D**

SYRINGE DRIVER TYPE: McKinley T34	SYRINGE DRIVER No:		LAST SERVICE OF SYRINGE DRIVER DATE:	PATIENT'S NAME: NHS No: DATE OF BIRTH	

DATE	TIME	ESSENTIAL CHECKS EACH VISIT						COMMENTS	NAME	SIGNATURE
		INFUSION SUMMARY VTBI	VI	RATE	TIME REMAINING	CHECK SITE	BATTERY LIFE %	KEYPAD LOCK ON			

Somerset Partnership NHS
NHS Foundation Trust

Audit Criteria for Syringe Driver Policy and Guidelines in the usage of McKinley T34

Aspects of Care - Outcomes	Expected Standard	Sources of Data Collection
Training / Competence Designated staff will have evidence of appropriate training. Initial (induction programme) and annual update and competency assessment.	100%	Mandatory Training Checklist Signed competency assessment
Use of Policy Guidelines The local policy and associated guidelines will be accessible to all staff using syringe drivers for subcutaneous infusion via Somerset Partnership Intranet or hard copy.	100%	Random sample of designated staff
Record Keeping Rationale for Syringe Drivers There must be documentary evidence of multi-disciplinary team assessment with patients and carers regarding any decision to administer medication via a syringe driver.	100%	Medical and nursing notes
Documentation All documentation must be dated, legible and signed as per record keeping policy. Prescription charts and administration of medicines charts to be fully completed following local medicines management policy.	100%	Charts as set out in local policies
Syringe Driver Equipment All syringe drivers to be logged on Medical Device Registers. Evidence of annual calibration and maintenance as per manufacturers instructions to be logged.	100%	Medical Device Registers Maintenance records