

**POLICY FOR THE MANAGEMENT OF McKINLEY  
T34 SYRINGE DRIVERS FOR SUBCUTANEOUS  
USE ON ADULTS**

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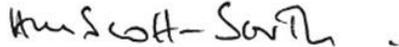
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# Burton Hospitals NHS Foundation Trust

## POLICY INDEX SHEET

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2	Policy review	June 2017	Subcutaneous cannula added, formatting changes, references updated

# POLICY FRAMEWORK

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# **Burton Hospitals NHS Foundation Trust**

## **POLICY FOR THE MANAGEMENT OF MCKINLEY T34 SYRINGE DRIVERS FOR SUBCUTANEOUS USE ON ADULTS**

### **1 BACKGROUND**

**This document was written in response to changes in national policy, practice development and to meet safety requirements for the infusion devices National Patient Safety Agency Rapid Response Report RRR019 (NPSA, 2011).**

The use of injectable medication has many healthcare benefits for patients. The complexities associated with the prescription, preparation and administration of injectable medicines means that there are greater potential risks for patients than for other routes of administration. Weak operating systems increase the risk of harm and safe systems of work are needed to minimise these risks.

Syringe drivers are commonly used for administration of drugs via the subcutaneous route in order to enhance symptom management.

Palliative Care patients often present with multiple symptoms that can necessitate the need to use several drugs. These drugs include opiates, anti emetics, sedatives, non-steroidal anti-inflammatory drugs, anti-convulsants and anti-secretory agents. In this way treatment can be planned and delivered at a regular rate for periods up to 24 hours.

This policy is aimed at healthcare professionals that are involved in the setting up and management of syringe drivers and the prescribing and administration of syringe driver medication.

### **2 PURPOSE**

This policy is to ensure safe and effective use of the T34 McKinley Syringe driver.

### **3 THE T34 MCKINLEY SYRINGE DRIVER**

The syringe driver is a portable, battery operated device for mechanically delivering drugs at a predetermined rate by continuous subcutaneous infusion. The syringe driver works by pushing the fluid contained in the syringe into an administration set and into the subcutaneous tissue through a sub-cutaneous cannula. This policy refers only to drugs being delivered subcutaneously.

The McKinley T34 will be secured in a locked box (supplied with the syringe driver) the key to unlock the box will be held by the registered practitioner.

**Burton Hospitals NHS Foundation Trust uses the McKinley T34 syringe driver for subcutaneous use only. Using the “Lock On” “Prime and Load” modes of operation.**

#### **4 INDICATIONS FOR USE**

Continuous subcutaneous infusion should not be used indiscriminately, without prior consideration of other alternative routes of administration, for example, sublingual or transdermal routes.

Therapeutic Advantages

- It is possible to achieve stable plasma concentration over time facilitating symptom control
- Therapies can be planned and delivered over a 24 hour period avoiding the need for 4 hourly injections
- A combination of drugs can be administered in the same syringe subject to compatibility guidelines in the palliative care Formulary Fifth Edition (Twycross & Wilcock 2012).

#### **5 CRITERIA FOR USE**

Situations in which the patient is not able to swallow or absorb oral medication.

- Persistent nausea and vomiting
- An intolerance of oral administration of drugs ( e.g. patients with head and neck cancer)
- Difficulty in swallowing
- Poor alimentary absorption
- Intestinal obstruction
- Comatose/moribund patient
- Profound weakness
- In order to reduce respiratory or gastrointestinal secretions.

#### **6 PREPARATION FOR USE**

Valid consent must be given voluntarily by an appropriately informed person prior to any procedure or intervention. No one can give consent on behalf of another adult who is deemed to lack capacity regardless of whether their impairment is temporary or permanent. However such patients can be treated if it is deemed to be within their best interest. This must be recorded within the patients health records with a clear rationale stated at all times.

The Mental Capacity Act 2005, which came fully into force on 1 October 2007, sets out a statutory framework for making treatment decisions for people who lack the capacity to make such decisions themselves ( see Trust Mental capacity act (2005) Policy, 2016).

## **7 EQUIPMENT**

The Mckinley T34 will be stored in the Medical Equipment Library in labelled grab boxes which will include a syringe, battery, sub-cutaneous cannula and line. Once the T34 has been discontinued and appropriately decontaminated it can then be placed in the designated collection point for return.

The community hospitals will have a Mckinley T34 labelled /expiry dated grab box located on each ward. Staff should inform the Medical Equipment Library once they have used one to arrange a replacement.

### **Choice of syringe**

The Mckinley T34 may be used with most makes of syringes.

Burton Hospitals NHS Foundation Trust advocates that a 30ml Leur lock syringe (fluid volume 22ml) is used.

This recommendation is for the following reasons:

- A larger dilution will reduce both the risks of adverse site reactions and incompatibility
- It also accommodates larger doses of drugs if needed
- It minimises the loss of medication when the line is primed (this is important as Burton Hospitals NHS Foundation Trust has opted for the “Prime and Load” mode of operation)
- A leur lock syringe must be used to avoid leakage or accidental disconnection.

### **Choice of Cannula**

Saflo sub-cutaneous cannulas are used with both McKinley T34 syringe drivers and sub cutaneous fluids at Burton Hospitals NHS Foundation Trust. These cannulas meet the requirements of the EU directive on prevention of sharps injury brought into force in May 2013.

### **Choice of line**

Saflo cannulas and extension sets have a very low priming volume (Less than 0.2mL). It is essential that the total prime volume of the cannula and line does not exceed 1ml. ANY VOLUME OVER 1ml CONSTITUTES A DRUG ERROR.

This is in line with “McKinley” recommendations when the “Prime and Load” mode of operation is used.

### **Summary of Requirements**

- Mckinley T34 Syringe Driver
- T34 syringe Driver lock box
- Prescribed medication including diluent
- Syringe driver label stating medication, doses, route of administration, diluent, volume, patient’s name, date of birth/NHS number, date, time and signatures of both health care professionals involved in administering and checking the syringe driver.

- 9v alkaline battery (rechargeable batteries are not to be used) Mckinley recommend Duracell MN1604
- 30ml Luer lock syringe
- Saflo subcutaneous cannula and extension set (see above)
- Selection of syringes for drawing up medication
- Clear adhesive dressing
- Sharp box.

## 8 SETTING UP A MCKINLEY T34 SYRINGE DRIVER

Setting up a syringe driver should be undertaken by two registered Nurses one of whom must have undertaken the McKinley Syringe Driver training and have been assessed as competent in the procedure. (Refer to procedural guidelines).

Aseptic non touch technique should be adhered to when setting up a syringe driver, hands should be washed and personal protective equipment used as per infection control policy.

### Diluting Medication

When drawing up the medication into the syringe, be aware that manufacturers may provide additional volume in liquid ampoules, it is essential that the prescribed dose only is drawn up. Dilute using prescribed diluent. 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 the diluent to draw fluid volume up to;-

- 22ml in a 30ml leur lock syringe

Mckinley recommend not putting volumes larger than above within a 30ml syringe.

Water for injection is the diluent of choice except for those drugs listed as incompatible or unstable with water for injections in the Palliative Care Formulary Fifth Edition (2012) (appendix 1).

If further advice is needed, contact the pharmacy department. Ext 5322.

The solution in the syringe driver should be clear and free from precipitation and/or crystallisation for the 24 hours which the drug is to be delivered.

**Please note** that when using dexamethasone the solution initially becomes cloudy but then clears.

If cloudiness or precipitation remains a problem the syringe and its contents should be discarded and the prescriber informed as the regime may need to be reviewed. This can be done in consultation with the Specialist Palliative Care Team.

## **9 KEY PAD LOCK AND LOCK BOX**

The Mckinley T34 syringe driver has a keypad lock and a lock box to enhance safety. The lockbox key will be kept with the ward keys and held by the registered Nurse.

To activate/deactivate the keypad lock, please refer to the procedural guidelines.

**Note:** Each syringe driver will have a lock box

- Lock syringe driver in lock box
- Ensure syringe driver is protected from light where appropriate: single patient use bags can be used.
- Position syringe driver level with the site of the infusion within practical reason.
- When there are changes to the drug, a new syringe and infusion set should be used.
- Dispose of all sharps safely checking empty ampoules before discarding as per Waste Management Policy.

## **10 DRUG COMPATIBILITIES**

Consideration must be given to drug compatibility to ensure efficacy of treatment. A table of compatibilities can be found in the Palliative Care Formulary Fifth edition (Twycross & Wilcock 2012) or advice can be sought from the Queens Hospital Pharmacy department.

Drug incompatibility can lead to precipitation, which may result in the cannula becoming blocked and inflammation at the insertion site.

The absence of cloudiness does not always guarantee compatibility or stability.

## **11 ONGOING OBSERVATIONS AND MONITORING OF THE INFUSION**

The following aspects should be checked every 4 hours and on changing the syringe driver. This must be recorded on the syringe driver check list (appendix 6).

- A. The effectiveness of the medication.
- B. The infusion site for - inflammation, irritation, bruising, infection, leakage. Ensure the needle is secure.
- C. The infusion set for any blood, precipitation or crystallisation of the medication.
- D. The syringe driver - is running to time at the correct rate. There is adequate battery life remaining and the syringe driver is free of any physical damage.

The infusion set should be changed if there is any evidence of signs mentioned in B and C or the prescription has been changed. Otherwise the infusion set must be changed every 72 hours.

## 12 RE-SITING AND SKIN REACTION

If a patient experiences a painful inflammatory reaction the following steps should be taken.

- Change the cannula site – this should be at least 5cm away from the last site
- Give the irritant drug via another route
- Change the irritant drug.

## 13 PROCEDURE IF THE ALERT / ALARM SOUNDS

If the occlusion alert sounds do not wait for signs of inflammation/occlusion before re-siting, as the pressure alert systems integral to the T34 will alarm **before** problems can be seen visually.

When the alarm sounds the following action is required:

- The first time the alarm sounds the nurse must check for line kinking/occlusion/site problems
- If the driver alarms a second time then the nurse **MUST** re-site the cannula (even if no problem is seen visually).

## 14 TROUBLESHOOTING

For all incidents – assess the patient and contact the medical practitioner for guidance on safe patient care. Report the incident as per policy.

If a syringe driver infusion runs through to slowly;

- Check record sheet to confirm the volume in syringe and time commenced
- Check giving set for kinking
- Check infusion site for displacement/leakage or inflammation
- Check contents of syringe for precipitation or crystallisation
- Check syringe is secured properly on the syringe driver
- Check infusion rate
- Check the battery is working by using the function keys of the McKinley T34 syringe driver
- Check start function has been commenced
- Check position of the syringe driver – may be positioned to low
- Assess patients symptoms and administer additional prn medication if required.

If the syringe driver infusion runs through too quickly;

- Assess the patient, contact medical team to inform and request review
- Check record sheet to confirm volume in syringe and time commenced

- Check infusion rate
- Check syringe driver – may be positioned to high.

### **Action for Faulty Syringe Driver**

Exchange syringe driver and send to the Medical Electronics, appropriately labelled with a completed defect report form, for servicing. Keep a record of the asset number.

## **15 INCIDENT REPORTING**

Any syringe driver errors or incident must be reported through the appropriate incident reporting system. Significant events, serious untoward incidents or unexpected deaths will be immediately reported as indicated in the Incident Management Policy.

In the event of a Serious Untoward Incident ensure the syringe driver is kept with the removed battery and rate setting left unchanged. The syringe with the medication should be kept in the controlled drugs cupboard, until any investigation has been undertaken.

## **16 CARE OF THE SYRINGE DRIVER ONCE CARE COMPLETE**

When the syringe driver is no longer required remove the battery wipe clean the external surface of the syringe driver with detergent wipes as per Decontamination policy and label with a clinell clean sticker. Return the syringe driver to the Medical Equipment Library.

## **17 DISCHARGING A PATIENT WITH A T34**

See Appendix 4

In the event of a patient being discharged to their home, or other health provider with a T34 syringe driver, the ward staff responsibility is to complete the T34 subcutaneous syringe driver tracking form and return it to the Medical Equipment Library.

See appendix 5

If a patient is discharged to their home address with a T34 syringe driver, provide the district nurse with the letter referencing 3 addresses to return the syringe driver.

See appendix 7

On discharge for patients going to own home, provide the syringe pump information for patients and carers.

## **18 SYRINGE DRIVER SERVICING**

Within Burton Hospitals NHS Foundation Trust all syringe drivers must be serviced annually by the medical engineering department (Please refer to the medical devices policy).

## 19 RISK MANAGEMENT

### A. Training and Support

All health care professionals are accountable for their practice for ensuring that they undertake the appropriate training to carry out this procedure and that they maintain their competencies in accordance with their regulatory body. This must also be in accordance with the Standards for medicine management (Nursing and Midwifery Council 2008).

There will be two levels of training within Burton Hospitals NHS Foundation Trust.

- **Advanced User /Train the trainer**– will complete the on line learning package followed by a 2 hour training session delivered by Mckinley. This training will enable the practitioner to cascade training to relevant qualified staff.
- **General User** – Complete a face to face training session  
Competency to be self assessed  
Advanced users in the work place may help with training and updates

All users to undertake a3 yearly update.

This can be accessed in the following ways:

- Via the Medical Equipment Library
- Via an advanced user
- By completing the online training
- By accessing the set up video available on the Practice Development resources page.

Only registered nurses and health professionals that have completed the face to face training in the last three years may use a syringe driver.

The training and the competency may need to be repeated if the practitioner:-

- Has been on long term absence from work e.g. over 6 months
- Has had the topic identified as a development need following a clinical investigation or root Cause analysis.

#### Online Training

On line support is available for the use of Mckinley syringe Driver interactive training via the website –

Visit the training area at <http://www.mckinleymed.co.uk/online-training/>.

Register using organisation log in and complete registration form, contacting Learning & Development or practice development for organisation log in details.

If no trained health care professional is available, advice should be sought from the Clinical Site Practitioners (CSP's) In circumstances where a syringe

driver can not be safely commenced the drugs should be prescribed to be administered by intermittent injection until a syringe driver can be commenced.

## B. Dissemination

This policy is stored on the Intranet (read only)

## **20 EQUALITY IMPACT ASSESSMENT**

Burton Hospitals NHS Foundation Trust aim to design and implement services, policies and measures that meet the diverse needs of our services, population and workforce, ensuring that none are placed at a disadvantage over others.

As part of the development, this strategy and its impact on equality have been assessed. The assessment is to minimise and if possible remove any disproportionate impact on the grounds of race, sex, disability, age, sexual orientation or religious belief. No detriment has been identified.

## **REFERENCES**

Dickman, A. and Schneider, J. (2011) The syringe Driver (3<sup>rd</sup> ed) Oxford university Press. Oxford

Twycross, R. Wilcock A. (2011) Palliative Care Formulary (4<sup>th</sup> ed) Palliativedrugs.com.ltd: Nottingham

McKinley 34 instruction manual

## Procedure

This procedure follows the prime and load sequence

Note it takes 4-6hours for drugs to reach therapeutic blood plasma levels via a syringe pump, therefore a breakthrough dose of medication may be required to be administered when the syringe pump is set up for symptom management.

It is recommended best practice when a syringe driver is set-up, reloaded or re-sited to observe the syringe pump for the first 15 minutes to check that it is working correctly.

Step	Procedure	Rationale
1.	Check the patient prescription including diluent to be used. Confirm previous doses, formulation and frequency. Ensure that medication prescribed and doses are clinically appropriate based requirements over the past 24-48hrs	Ensure appropriate authorisation to administer correctly via a T34 syringe pump to the correct patient. Confirm correct drug formulation and for current symptoms.
2.	Confirm the identity of the patient verbally if possible plus check patient I.D band.	To avoid mistaken identity
3.	Explain the procedure and rationale for the use of the syringe pump to the patient and carer. This should include essential basic information and the syringe driver and drugs to be given.	Ensure sufficient information is given to gain informed consent to be obtained.
4.	Gain and record verbal consent	Ensure mental Capacity act and consent policy compliance. To ensure the patient and family are happy for the procedure to go ahead, are prepared and feel supported.
5.	Check the T34 pump service due date and the pump and accessories are clean visually intact and in working order.	To ensure the device to be used has been subject to annual service and is fit for use.
6.	Position battery correctly onto the back of the syringe driver. (Duracell 9v alkaline recommended by manufacturer.	
7.	Ensure the barrel clamp arm is positioned down and press and hold the grey ON/OFF key	To activate the device.
8.	The actuator will move to the start position of the previous infusion. Allow the pre-loading function to take place.	To prepare the pump for use.

	<p>DO NOT INTERRUPT THIS FUNCTION as this movement deletes the previous programme in the pump memory. Check the configuration of the pump on the display screen,</p> <p>Nb. An alarm will sound every 2 minutes whilst the pump is left in the stopped mode (on hold) the alarm can be silenced by pressing the green yes button</p>	
9.	<p>Check the battery life by pressing the blue information button. The screen will then state battery level. Press the green yes button to show the current battery level. If it reads low battery should be changed.</p> <p>Average battery life is 3-4days at 100%</p>	To ensure battery does not run out between checks,
10.	<p>Wash hands or use hand sanitiser if hand not visibly soiled and put on apron</p>	Maintain good hygiene and minimise Infection. Refer to infection prevention and control policies.
11.	<p>Select 30ml syringe</p>	To ensure a correct delivery of drugs over 24hours.
12.	<p>Consider drug compatibility with each other and diluent. Refer to West Midland guide lines or contact Pharmacy 5322</p>	Ensure correct compatibility with drugs and diluent and dose regime.
13.	<p>For each drug prescribed, check the label against the patient prescription checking</p> <ul style="list-style-type: none"> <li>• Name of medicine</li> <li>• Strength</li> <li>• Dose</li> <li>• Expiry date</li> </ul>	To ensure the correct dose of all medication is given
14.	<p>Using a non-touch technique dissolve prescribed drugs in appropriate diluent ensuring that the volume solution is drawn up to 22ml in a 30mls luer lock syringe. Invert the syringe gently to mix the solution. Observe for cloudiness, discolouration or precipitation. Discard if this occurs and seek advice. Nb – dexamethasone initially can be cloudy but will clear.</p>	<p>Ensure adequate dilution of medication. Luer lock syringe minimises risk of syringe becoming dislodged during the infusion.</p> <p>Ensure drugs are mixed thoroughly</p>
15.	<p>Connect the infusion set line to the luer lock syringe and prime the line expelling all air.</p> <p><b>Omit this part of the procedure if replenishing the syringe only.</b></p>	<p>Ensure all air is expelled</p> <p><b>The total prime volume must not exceed 1ml</b></p>
16.	<p>Fully complete label with patients name,date,time drug,dose,diluent and initials of the nurse. Attach to syringe</p>	To avoid any interference with running of the infusion and facilitate correct identification of syringe brand

	taking care not to obscure visual inspection of the syringe for monitoring purpose or interfere with the mechanism of the device (barrel clamp arm)  <b>An unlabelled syringe should not be fitted to a syringe driver.</b>	
17.	The display screen states to load the syringe.	
18.	With the barrel clamp arm positioned down, use the grey/ff Back keys to move the actuator to the position required for loading the syringe. Repeated depression of the FF keys may be required to move the actuator forward.	To ensure the syringe will be correctly placed to deliver infusion over 24 hours.
19.	Lift the barrel clamp arm and insert the loaded syringe. Ensure that the syringe collar is placed securely into the syringe collar sensor and the plunger clips into the plunger sensor. Turn and lower the barrel clamp arm to secure the syringe.  The load syringe graphic on screen will cease to flash when the syringe is correctly seated at all 3 points.	The syringe is correctly seated at all there sensor points.
20.	The display will state the syringe size and brand. Press Green Yes key if correct, or use the up and down keys to scroll and select the correct size and brand of syringe.	To ensure the syringe driver is correctly programmed.
21.	The infusion will display the infusion summary volume (in ml). Duration of infusion (24hr) and rate of infusion (ml per hr) check the details on the screen are correct. If correct press the green yes key.	To ensure the correct rate of infusion is selected.
22.	Ensure the patient is comfortable and select an appropriate infusion site with adequate subcutaneous tissue to support an infusion. Avoid broken, irritated or oedematous skin, bony prominences and the upper chest wall in cachexic patients. (see appendix 2)	To maintain a patent infusion.
23.	If required trim excess hair from selected site using single use disposable scissors.	To ensure dressing adheres to patient skin and reduce the risk of causing pain or discomfort when removing the dressing.
24.	Clean the chosen site with 70% Alcohol and 2% chlorhexadine (unless contra indicated) for a minimum of 30 seconds and leave to dry.	Minimise the risk of infection.
25.	Grasp the chosen site firmly and insert the butterfly needle at 45 degrees, with bevel end of the needle facing downwards. Release the grasped skin.	To ensure the needle is inserted at the correct angle promoting better insertion.

26.	Loop part of the tubing over the wings of the butterfly. Secure the needle with semi-permeable transparent dressing.	To reduce Tension.  To ensure the needle remains in position and the site can be observed.
27.	The display will state "start the infusion?" press green yes key when ready to commence the infusion.	To ensure the infusion is commenced.
28.	The display screen will then display the infusion running time, rate (ml per hr) and syringe size. The green light flashes every 32 seconds to indicate infusion delivery.	Confirms the infusion has commenced.
29.	The key pad should then be locked. Press the blue information key until the bar moves from left to right, the key should be held down until the bar has moved completely across the screen, and a beep will be heard to confirm the lock has been activated.	This prevents the key pad from being tampered with whilst the infusion is running.  Do not release the info key until the beep is heard.
30.	To deactivate the keypad lock (pump must be infusing) repeat the above procedure, the bar will move from 'right' (lock) to 'left' (unlock) and a beep will be heard.	Do not release the info key until the beep is heard.
31.	Place the syringe into the lock box, close securely and lock.	This prevents the loaded syringe from being tampered with whilst the infusion is running.
32.	On completion of procedure remove and dispose of personal protective clothing and carry out hand hygiene. Ensure appropriate disposal of waste.	To prevent cross infection and environmental contamination.
33.	Document procedure and complete all relevant syringe driver documentation, including syringe driver check list.	To record patients care, and comply with health records policy.

## Renewing an infusion

When the 24 hours have completed

An alert 2-3 bleeps is activated approximately 15/30 mins prior to the infusion end.

A continuous alarm activates when the infusion is complete. The screen will display

'programme end' and the infusion status indicator light turns red.

Step	Procedure	Rationale
1.	Reassess the patient for evidence of symptoms and response to medication that have been administered. Including the infusion and as required medication.	To ensure medications prescribed are clinically appropriate based on the requirements over the last 24hrs.
2.	A continuous alarm sounds to indicate infusion is complete press Green Yes button to confirm the end of the infusion.	Confirms end of infusion
3.	Deactivate the keypad lock and press the Red Stop button.	To Stop the infusion

4.	Press the <b>ON/OFF</b> button to power down the pump	To turn off the pump
5.	Disconnect the syringe from the infusion line. Document any fluid remaining in the syringe on the syringe driver monitoring chart.	To prevent any accidental bolus administration of any remaining fluid. To maintain accurate medication record. Adherence to record keeping policy.
6.	Cap off the infusion line with a single use bung	To minimise infection. Adherence to infection control policy
7.	Open lock box and remove syringe pump. Ensure barrel arm clamp is placed in its down position.	To enable actuator to move and clear previous infusion from pump memory.
8.	Draw up new infusions as per procedure omit steps 13, 20-23 if replenishing the syringe only. Secure the syringe onto the device	To ensure correct medication is infused over 24hours. To ensure the syringe is correctly placed to deliver the infusion over 24hours.
9.	Remove single use bung from the end of the infusion line and reconnect line to the new syringe.	To prepare the start of the new infusion.
10.	The display will state "Start the infusion" press the Green Yes key when ready to commence the infusion.	To ensure the infusion is commenced.
11.	The screen will then display that infusion running time, rate and syringe size. The green light flashes every 32 seconds to indicate infusion delivery.	Confirms the infusion has commenced.
12.	The key pad should then be locked. Press the blue information key until the bar moves from left to right, the key should be held down until the bar has moved completely across the screen, and a beep will be heard to confirm the lock has been activated.	This prevents the key pad from being tampered with whilst the infusion is running.  Do not release the info key until the beep is heard.
13.	Place the syringe into the lock box, close securely and lock.	This prevents the loaded syringe from being tampered with whilst the infusion is running.
14.	On completion of procedure remove and dispose of personal protective clothing. To comply with waste management policy.	To prevent cross infection and environmental contamination
15.	Document procedure and complete all relevant syringe driver documentation, including syringe driver check list.	To record patients care, and comply with health records policy.

## Stopping the infusion and removing the syringe pump

1.	When the infusion is complete and the syringe is empty it will stop automatically and the alarm will sound.  If the syringe pump is no longer required, press "off" and then remove the battery from the syringe pump.	
2.	If the infusion is to be stopped before the syringe is empty, it should be disconnected at the syringe end from	A syringe that is not empty must never be taken off the pump while connected to the patient.

	the patient for safety reasons before the syringe is taken off the pump.	
3.	Disconnect the existing line from the syringe and remove the line from the patient.	
4.	Dispose of sharps in approved container in line with the trust policy.	

### **Changing the Battery mid infusion**

1.	Press the stop button to stop the infusion, remove old battery from the pump and replace with a new one.
2.	Switch pump back on using the ON/OFF button
3.	Confirm the size and make of syringe
4.	Press 'YES' to resume infusion
5.	The screen will display remaining volume, duration and rate of infusion. Press 'YES' to confirm Screen will display 'Start infusion' Press 'YES' to confirm start infusion.

## Subcutaneous Insertion Sites

Areas that can be used to insert a giving set for a subcutaneous site:

- Anterior aspect of upper arms
- Anterior abdominal wall
- Anterior aspect of thighs
- The scapula if the patient is distressed and or/agitated

**The following areas should be avoided when inserting a subcutaneous needle**

- Areas with lymphodema or oedema
- Areas with too little subcutaneous tissue
- Broken skin or scar tissue
- Skin sites that have recently been irradiated
- Sites with infection or inflammation
- Area with bony prominence
- Near a joint
- Tumour sites
- Skin folds
- Radiotherapy sites
- Breast
- Upper arm/outer thigh in bed bound patients who require turning

**Protocol for the Transportation of Patients  
Receiving Subcutaneous Palliative medications.  
For the relief of Pain and other Symptoms  
Via Mckinley T34 syringe Driver**

It is envisaged that the ambulance crews can transport patients as long as the following criteria is applied:

- When transport is requested ambulance services are advised a syringe driver is in situ
  - Where possible prior to taking the patient in the ambulance, the crew will ensure that the doctor or registered nurse in charge of the patient has checked and documented the following in the patient's medical or nursing notes.
- 1) Infusion is satisfactory
  - 2) Mckinley T34 syringe driver is working
  - 3) Light indicator is working
  - 4) Connection is secure
- The lock box key will be kept and will remain on the ward
  - Ensure that there is sufficient medication in the syringe to cover the next 24 hour period which supports the duration of the journey including any foreseeable delay and the expected time of the community team visit.

## Appendix 4



**Queen's Hospital**  
Belvedere Road  
Burton upon Trent  
Staffordshire  
DE13 0RB

Telephone 01283 566333

### T34 subcutaneous syringe driver tracking form

This form needs to be completed by ward staff on discharge and returned to the medical equipment library in the used discharge box.

Syringe driver asset number

Date of discharge

Patients B number

Place of discharge

Signature of nurse discharging patient

## Appendix 5



**Queen's Hospital**  
Belvedere Road  
Burton upon Trent  
Staffordshire  
DE13 0RB

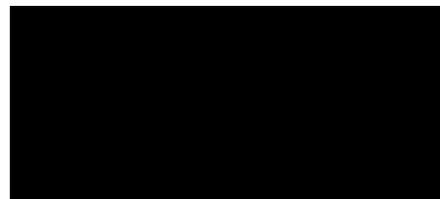
Telephone 01283 566333

Dear District Nurse

Please return the Queen's Hospital T34 subcutaneous syringe driver in the bag provided to one of the following options:

- The Help Desk  
Queen's Hospital  
Belvedere Road  
Burton upon Trent  
Staffordshire  
DE13 0RB
- The Reception  
Sir Robert Peel Community Hospital  
Plantation Lane  
Mile Oak  
Tamworth  
B78 3NG
- The Reception  
Samuel Johnson Community Hospital  
Trent Valley Road  
Lichfield  
WS13 6EF

Check sheet for Mckinley T34 Syringe Driver for Subcutaneous Infusion



**McKinley T34 Syringe Driver Monitoring Form**

Forename:	Unit Number:	Asset Number:
Surname:	Date of Birth:	

**If a patient is admitted with a syringe driver from the community/other care provider please change it to a Trust T34 syringe driver as soon as possible.**

**KEY:**

- **Date** – record date of commencement/change of syringe.
- **Time** – record time of commencement/change of syringe.
- **Site** – record what the site looks like, S=satisfactory I=inflamed B=bruised (Comment if I/B).
- Rate** - record the rate displayed on screen.
- Light indicator** - is the light on and flashing green (this may take a minute), Y=Yes N=No (comment if no).
- **Syringe volume (VTBI) and time remaining** – record amount remaining to monitor if infusing too fast/slow.
- Battery level** - record the % remaining.
- Driver lock** - is the lock on, Y=Yes N=No (Comment if no).
- **Stability of solution** – record appearance of solution, CL=Clear P=Precipitated (Comment if P).
- **Patient’s condition** – C=Comfortable, F=Fair, U=Uncomfortable (Comment if F/U).

**Ensure the syringe driver and site are checked every 4 hours.**

**Remember to change the site and line every 72 hours.**

Date						
Time						
Site						
Rate (mls/hr)						
Light Indicator						

<b>VTBI (mls/hr)</b>						
<b>Time Remaining</b>						
<b>Battery Level</b>						
<b>Stability of Solution</b>						
<b>Driver Lock</b>						
<b>Patient's Condition</b>						
<b>SC Cannula Date</b>						
<b>Set/line Date</b>						
<b>Comments</b>						
<b>Signature of Nurse</b>						

<b>Date</b>						
<b>Time</b>						
<b>Site</b>						
<b>Rate (mls/hr)</b>						
<b>Light Indicator</b>						
<b>VTBI (mls/hr)</b>						
<b>Time Remaining</b>						
<b>Battery Level</b>						
<b>Stability of Solution</b>						
<b>Driver Lock</b>						
<b>Patient's Condition</b>						
<b>SC Cannula Date</b>						
<b>Set/line Date</b>						
<b>Comments</b>						
<b>Signature of Nurse</b>						

<b>Date</b>						
<b>Time</b>						
<b>Site</b>						
<b>Rate (mls/hr)</b>						
<b>Light Indicator</b>						
<b>VTBI (mls/hr)</b>						
<b>Time Remaining</b>						

<b>Battery Level</b>						
<b>Stability of Solution</b>						
<b>Driver Lock</b>						
<b>Patient's Condition</b>						
<b>SC Cannula Date</b>						
<b>Set/line Date</b>						
<b>Comments</b>						
<b>Signature of Nurse</b>						



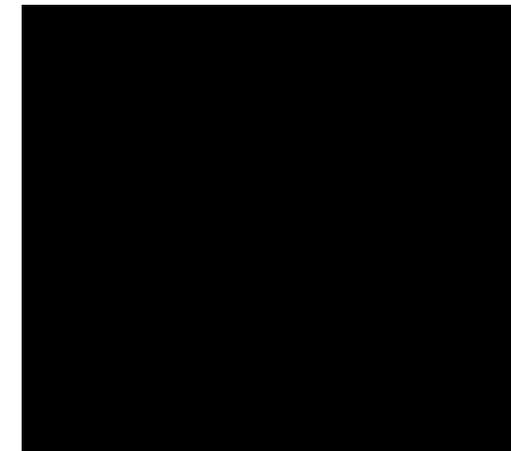
## Simple rules to follow

- If the alarm sounds do not panic. Contact the nurse immediately.
- Do not take the syringe driver into the bath or shower.
- Do not expose to steam, heat or light as this may damage the pump and affect the medicine.
- Do not drop the syringe pump. When walking about, put the syringe pump in a bag.
- When you are in bed or resting in a chair, the syringe pump can be placed on a flat surface next to you.
- Occasionally check that the tubing is free from blockages or kinks.
- Do not drive without consulting your doctor.
- Keep medicines in a secure place out of reach of children.

## District nurse contact numbers



## Syringe pump information for patients and carers



## A guide for Community patients

## How your syringe pump works:

### What is a syringe pump?

A syringe pump is a small portable, battery operated pump. It allows medicines to be given at a constant and steady rate over a 24 hour period.

Giving medicines by this route allows them to be absorbed into your system and helps your symptoms. It may avoid the need to have lots of injections.

### A syringe pump is used for a number of reasons:

- To help control symptoms caused by your illness.
- It may be that you are having difficulty swallowing or have been vomiting and unable to keep your medicine down.

It is a safe and easy way to give medicine when other routes are not effective but as with all procedures there is a small element of risk. If you have any concerns please discuss this with a health professional.

- The nurse will insert a small needle under your skin, in your chest, upper arm, tummy or top of the legs. The needle, which can stay in place for 72 hours (3 days), is connected by a fine tube to a syringe containing your medicine.
- The syringe is then placed on to the syringe pump which gradually pushes the syringe plunger to deliver the medicine over 24 hours.
- Every few minutes it delivers a small amount of medicine.
- A light above the on/off button will flash green about every 30 seconds. If it turns red there is a problem with the pump.
- The needle is kept in place with a see through dressing.
- Syringe pumps are generally very reliable.

### Who refills the syringe pump?

The nurse will usually refill the syringe on your syringe pump once a day, they will:

- Assess you
- Check that the syringe pump is working correctly
- Check that the needle site is not painful, red, swollen or leaking.
- Answer any questions you may have.

### You should contact the nurse if:

- You think that there is something wrong with the syringe pump.
- The alarm sounds and the light turns red.
- The syringe is disconnected from the syringe pump.
- The syringe is empty.
- The needle has come out.
- The needle site is leaking
- The needle site is painful, red or swollen
- If you notice that the medicine looks cloudy.