Western Health and Social Care Trust

POLICY FOR THE USE OF THE CME MCKINLEY T34 AMBULATORY SYRINGE PUMP FOR ADULT/PAEDIATRIC PALLIATIVE PATIENTS

AUGUST 2015

Title:	Policy for use of the CME McKinley T34 Ambulatory Syringe Pump for Adult/Paediatric Palliative Patients.			
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Summary of Amendments to Previous Version of Policy

This policy has been adapted from the South Eastern Health & Social Care Trust Guidelines for use of the CME McKinley T34 syringe pump for adult/paediatric palliative patients

1.0 INTRODUCTION

1.1 Background

This policy has been designed to provide evidenced based guidance on the safe use of the CME McKinley T34 ambulatory syringe pump (McKinley T34 syringe pump) within the Western Health and Social Care Trust (Western Trust).

2.0 PURPOSE OF THIS POLICY

The use of these pumps has greatly enhanced symptom management for palliative care patients in the latter and difficult stages of their illness.

Indications for use are as follows:

- Intractable pain or other symptoms in the absence of adequate absorption of oral medicine
- Persistent nausea and/ or vomiting
- Inability to swallow
- Intestinal obstruction
- Unconsciousness
- If other routes such as the rectal or transdermal route are inappropriate or unacceptable to the patient

(Palliative Care Formulary 2011, The Rainbow Children's Hospice Guidelines 2013)

This policy is an integral component of a wider Proficiency Programme aimed at supporting staff to enhance their knowledge and skills in the nursing management of the McKinley T34 syringe pump. Please see reference list for other relevant legislation relating to this policy.

2.1 Objectives

The policy is designed to provide the following assurances:

- Ensure a consistent approach in the use of T34 syringe pumps throughout the Western Trust
- Ensure the safety of palliative care patients who are receiving medications via a T34 syringe pump

- Ensure all nursing staff are competent in the administration of medication subcutaneously via a syringe pump

2.2 Scope of the Policy

The purpose of this policy is to serve as a reference resource to medical and nursing staff to ensure the safe and effective use of the McKinley T34 syringe pump.

All appropriate healthcare professionals, prior to using the McKinley T34 syringe pump must complete the Proficiency Programme which involves the following:

- Attendance at a face to face teaching session provided by an advanced trainer followed by a period of practice using the McKinley T34 syringe pump
- Completion of the on-line tutorial on setting up a McKinley T34 syringe pump
- Completed a proficiency based workbook

2.3 Roles/Responsibilities

The Lead Nurse Intermediate Care Services and the Director of Women and Children's Services, will take the lead in ensuring this guidance is disseminated appropriately and is reviewed as required.

Directorates SMT/Governance Groups have responsibility for ensuring that this policy is adhered to by those developing or reviewing policies, procedures, guidelines and protocols in terms of processes to be followed and layout.

It is the responsibility of managers and supervisors to ensure that this policy has been brought to the attention of all relevant staff and it is the responsibility of staff to read and adhere to the contents of it.

It is the responsibility of all appropriate healthcare professionals to attend training prior to using the pump.

It is the responsibility of all Ward Sisters, Charge Nurses and Team Leaders to ensure that training records are kept up to date.

3.0 SYRINGE PUMPS – What are they?

Ambulatory syringe pumps are battery operated devices used to continuously deliver drugs into the subcutaneous tissue of patients for whom oral medication is problematic

3.1 Benefits for use are as follows:

- Combinations of drugs may be given simultaneously permitting appropriate control of symptoms
- Stable plasma serum levels of medication can be maintained
- Reduces need for repeated injections
- Infusion time is accurate
- Does not limit mobility
- Reloaded once every 24 hours.

(Palliative Care Formulary 2011, The Rainbows Children's Hospice Guidelines 2013)

3.2 Disadvantages are:

- Potential source of infection.
- Skin site reactions.
- Emaciated patients or those on long term infusion, skin site availability may become an issue.
- Need for daily nurse visit in the community.
- Patient/family perception

  (NHS for Scotland Guidance 2011)

4.0 CONSENT

It is essential that informed consent is obtained before a syringe pump is used. If the patient/parent is able to give their consent it can be given either verbally or implied. This should be recorded clearly in the patients' notes in accordance with the Guidance on Record Keeping (NMC 2009).

4.1 No one (not even husbands, wives, partners or close relatives) can give consent to treatment or care on behalf of another adult.

Relatives and friends are vital in the care and support of all patients. They may be able to tell health and social care professionals about the patient's beliefs and values. For example, they may know whether they have accepted or refused treatment in the past or have strong views on some health questions (DHSSPS, 2003).

Informed consent can only be obtained when the patient has:

- All the relevant information
- The opportunity to ask questions
- Made an informed decision

In most cases, informed consent can be either implied by the patient or verbally expressed.

In the case of adults who are unable to give consent, the patient's General Practitioner or Consultant can make a clinical decision regarding the course of action to be taken in the best interests of the patient.
In the case of a child who may not have the age appropriate cognitive ability decisions will be made in consultation with the parent(s).

The decision must be informed by holistic patient assessment, discussed fully with the patient's next of kin and documented in full within the patient's notes.

The DHSSPS Guidelines on 'Good Practice in Consent, Consent for Examination, Treatment or Care' (2003) should always be observed.

4.2 Informed Consent - in respect of the administration of unlicensed medications via the syringe pump.

Palliative care uses a number of drugs for indications or by routes that are not licensed by the manufacturer. In the UK, such unlicensed use is allowed, but at the

discretion and with the responsibility of the prescriber.

(The Rainbow Children's Hospice Guidelines 2013, The Association for Palliative Medicine and the Pain Society 2002)

5. 0 PRESCRIBING AND MONITORING OF MEDICATIONS

5.1 All drugs being delivered must be prescribed on the appropriate Western Trust prescription and administration chart for McKinley T34 pump. Staff need to ensure they also adhere to relevant Trust and NMC policies/ guidance, including:

- NMC Standards for Medicines Management (2008)
- NMC Guidance on Record keeping (2009)

5.2 All medicines administered via the syringe pump should be clearly and correctly prescribed according to local policy and procedures. The following information must be included:

- Patient demographic details
- Any known allergies
- Medicine name (generic in CAPITALS)
- Dose over 24 hours
- Diluent
- Route of administration
- Duration of subcutaneous infusion
- Prescriber's signature

5.3 The person preparing the medication should check the following:

- Prescription
- Compatibility of medicines prescribed
- Diluent
- Infusion volume required
- Size of syringe required

5.4 Practitioners administering a medicine that they have not previously used by the subcutaneous route should be aware that:

- Absorption may be slower than the intramuscular (IM) route
- Irritant medicines may cause a greater inflammatory reaction subcutaneous than IM.

Additional 'as required' subcutaneous breakthrough doses of medication should always be prescribed on the appropriate prescription chart and be available for administration when required.

When a maintenance 24 hour opioid dose is changed, the breakthrough dose should also be adjusted accordingly.

It remains the responsibility of each individual practitioner to ensure that the medicine(s) prescribed are suitable for continuous subcutaneous infusion and are stable under these conditions.

5.5 Guideline for Discharging Patients using a 'McKinley' syringe driver from Hospital or Hospice.

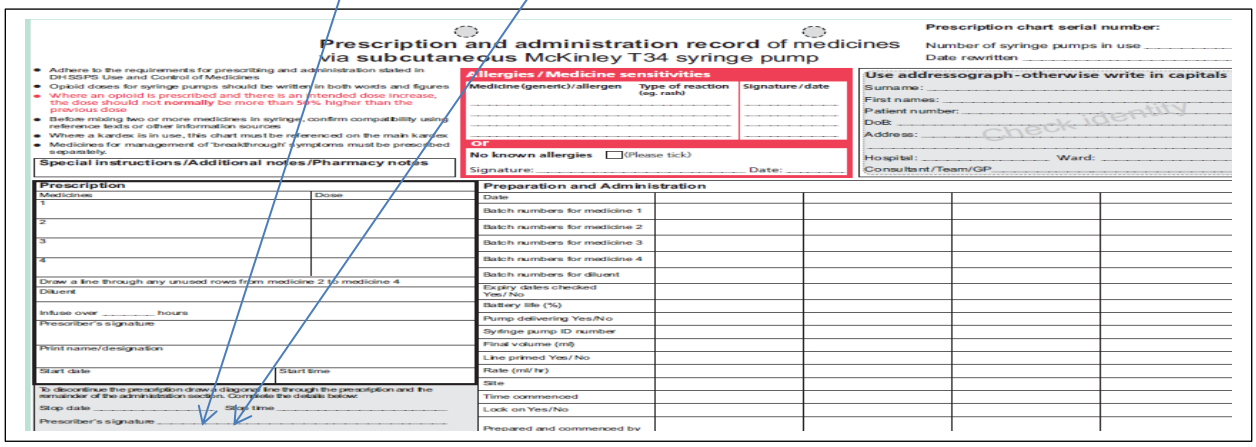
5.5.1 Background

When patients are discharged from hospital on a syringe driver there can be delays in administration/ renewal of the medicines within the driver. This is mainly due to the delay in the district nurse/CCN having to drive a considerable distance on many occasions to get the GP to prescribe on the syringe driver drug administration chart. This presents additional problems when the discharge is late in the day, or out of hours (includes weekends and bank holidays).

5.5.2 Processes

Following examination of these issues and from a governance perspective the following processes have been agreed:

1. All patient's discharged on the McKinley syringe driver must have a completed 'Prescription and Administration Record of Medicines Chart' before leaving the hospital. The doctor must document the start and stop date for the prescription


Prescription and administration record of medicines via subcutaneous McKinley T34 syringe pump

Prescription chart serial number:
Number of syringe pumps in use
Date rewritten

- Adhere to the requirements for prescribing and administration stated in DHSSPS Use and Control of Medicines
- Opioid doses for syringe pumps should be written in both words and figures
- Where an opioid is prescribed and there is an intended dose increase, the dose should not normally be more than 50% higher than the previous dose
- Before mixing two or more medicines in syringe, confirm compatibility using reference texts or other information sources
- Where a kardex is in use, this chart must be referenced on the main kardex
- Medicines for management of 'breakthrough' symptoms must be prescribed separately.

Special instructions/Additional notes/Pharmacy notes

Allergies / Medicine sensitivities
Medicine (generic)/allergen | Type of reaction (eg. rash) | Signature/date
OR
No known allergies (Please tick)
Signature: Date:

Use addressograph - otherwise write in capitals
Surname:
First names:
Patient number:
DoB:
Address:
Check identity
Hospital: Ward:
Consultant/Team/GP

Prescription
Medicines | Dose
1
2
3
4
Draw a line through any unused rows from medicine 2 to medicine 4
Diluent
Infuse over ____ hours
Prescriber's signature
Print name/designation
Start date | Start time
To discontinue the prescription draw a diagonal line through the prescription and the remainder of the administration section. Complete the details below:
Stop date | Stop time
Prescriber's signature

Preparation and Administration
Date
Batch numbers for medicine 1
Batch numbers for medicine 2
Batch numbers for medicine 3
Batch numbers for medicine 4
Batch numbers for diluent
Expiry dates checked Yes/ No
Battery life (%)
Pump delivering Yes/No
Syringe pump ID number
Final volume (ml)
Line primed Yes/ No
Rate (ml/ hr)
Site
Time commenced
Lock on Yes/No
Prepared and commenced by

2. If the patient is medically stable, the chart should be written for a minimum period of 48 hours (up to a maximum of 96 hours if the patient is discharged over a long bank holiday weekend). If, however the patient is likely to require clinical review at any time within the first 48 hours following discharge, the discharging medical team must contact the GP Surgery to discuss this with the GP.
3. If any patient is being discharged on a syringe driver, the district nurse/CCN must be informed of the discharge and of the time when the syringe driver is due for change. It is good practice to inform the GP also if any patient is going home on a syringe driver. If however the patient is likely to need medical review at any time within the first 48 hours, it is essential (as stated above) that the GP also be contacted.

4. An original prescription and administration record must always be issued – not a photocopy, in accordance with the NMC (2008) on the Standards for Medicines Management.

5. Provision of this chart will allow the community nurse to administer the medicines as prescribed under The NMC Standards (NMC, 2008).

6. If the district nurse/CCN is concerned at any time that the patient requires clinical review they must contact the GP/Associate Specialist or Consultant Paediatrician immediately.

6.0 LABELLING THE SYRINGE

6.1 Ensure the label does not interfere with the mechanism of the syringe pump for example where there is contact with the barrel clamp arm. When attaching the label, ensure it does not obscure the visual scales on the syringe which may require to be viewed during the infusion.

6.2 The following details are required on the label:

- Patient name
- Health &Social Care number
- Medicine name(s)
- Dose of each medicine
- Diluent name
- Total volume in millilitres (mls)
- Date and time prepared
- Initials of the individual preparing the syringe

7.0 STARTING SYRINGE PUMPS IN RELATION TO STOPPING OPIOIDS BY OTHER ROUTES OF ADMINISTRATION

7.1 If the syringe pump is commenced when the patient's pain is well controlled then a loading dose of opioid may not be necessary. If the patient's pain is not well controlled, consider giving a subcutaneous breakthrough dose of opioid at the same time as starting the syringe pump. This should be approximately 1/6th of the 24 hour dose prescribed in the syringe pump. This will be agreed by the medical Practitioner.

(Palliative Care Formulary 2011; Pang, 2011)

Start the syringe pump immediately if:

- the patient is not currently on any opioid OR
- the patient is receiving opioid on an `as required` basis OR
- the patient is receiving immediate release oral opioid preparation e.g. Sevredol®

7.2 Patients on modified release oral opioid preparation e.g. MST

Ideally, start the syringe pump 4 hours before the next dose of modified release preparation would be due (do not give oral preparation).

Ensure oral opioid preparation is withheld and discontinued following commencement of the syringe pump. Also ensure that appropriate breakthrough analgesia is prescribed.

In the community setting a decision on an appropriate time to start the syringe pump should be based on the clinical status of the patient.

7.3 Patients on Fentanyl Patches / buprenorphine

Refer to local palliative care guidelines for details, or consult a pharmacist or palliative care specialist/consultant paediatrician for advice.

7.4 When oral treatment is to be re-started

If an oral modified release preparation is being commenced, the continuous subcutaneous infusion should be stopped when the first dose of modified release oral opioid is administered. The patient may require breakthrough medication more frequently until therapeutic levels are reached. If further advice is required, seek guidance from a palliative care specialist.

7.5 There are various problems associated with mixing medication in the same syringe, which include:

- Degradation of the drug(s) which can lead to decreased efficacy. The rate of degradation may be increased by other drugs which can alter the pH of the mixture. Direct sunlight and heat can also cause degradation of the drug
- Crystallisation/precipitation. This can occur through formation of an insoluble product of a drug interaction, or because a drug alters the pH of the solution rendering a 2nd drug insoluble, or because of an interaction between the drug and the diluent.

7.6 Drugs combinations

Where drug combinations (commonly an analgesic and an antiemetic) are used, further criteria must be met:

- The drugs must be compatible with each other
- The diluent must be compatible with the drugs used

Information about the stability and compatibilities of drug combinations which can be administered via the McKinley T34 syringe pump are available from local guidelines
(Dickman et. al 2011, PANG 2011, www.palliativedrugs.com).

Drug combinations in the Palliative Care Guidelines should only be used on the recommendation of a palliative care specialist, or on the advice of a pharmacist. The advice given should be documented clearly in the patient's notes.

If in doubt about compatibility/stability of medicine combinations, consider using an additional pump or an alternative route of administration. Refer to local guidance for recommendations on the maximum number of medicines which can be mixed in one syringe and their compatibility.

7.7 Medicines NOT suitable for subcutaneous use

The medicines listed below must **not** be administered by the subcutaneous route as they may cause tissue necrosis:

- Antibiotics
- Diazepam
- Chlorpromazine
- Prochlorperazine

7.8 Number of drugs to be administered in one syringe:

No more than **THREE** drugs should be mixed in a syringe unless agreed by the Specialist Palliative Care Team.

Please note: Dexamethasone added for site reaction constitutes another drug and must be counted as such.

If the prescription requires the mixing of **TWO** or **MORE** medicines in the syringe, compatibility should be confirmed prior to administration using reference texts and other information services. Contact the Specialist Palliative Care Team or Pharmacy if there is any uncertainty.

In event of more than one syringe pump being used a separate prescription sheet **must** be utilised and numbered accordingly.

8.0 RISK ASSESSMENT GUIDANCE PRIOR TO PROCEDURE

8.1 Staff should not operate a syringe pump unless they have completed Proficiency Training, have undergone a period of simulated practice and deem themselves proficient and confident in setting up a syringe pump.

To practise proficiently, you must possess the knowledge, skills and abilities required for lawful, safe and effective practice without direct supervision. You must acknowledge the limits of your professional proficiency and only undertake practice and accept responsibilities for those activities in which you are proficient.

- **You** are personally accountable for your practice. This means you are responsible for your acts or omissions, regardless of the advice or directions from another professional.
- **You** have a duty of care to your patients and clients, who are entitled to receive safe and competent care.

8.2 Identify potential risks:

- Ensure that the syringe pump is fully functional prior to use. Do not use it if it appears faulty in any way.
- Ensure that annual maintenance and servicing arrangements

for syringe pumps are observed as per Western Trust operational policy and manufacturers' recommendations McKinley (2007).

- Do not modify or adapt the device for any use other than those recommended by the manufacturer.
- Following hospital / hospice discharge ensure the device is replaced with Western Trust community device (see 'Details of how to return McKinley T34 syringe pump' on palliative care site on Trust Intranet) as soon as possible. Contact with discharging unit should be made promptly to agree a plan which facilitates the return of the device.
- Each area must maintain their own local register which ensures that information on location, asset numbers, records of faults/ repairs/ transfers is kept up to date.

8.3 Questions to ask before going to the patient:

- Do I have the knowledge, skill and proficiency required to erect the Syringe Pump?
- Is the drug regime correctly prescribed and are all the drugs in the mix compatible?
- Have I fully addressed the fears and concerns of the patient / carer?
- Have appropriate drug conversions been made?
- Have PRN bolus (STAT) medication(s) been prescribed in the event that the patient experiences breakthrough symptoms?
- Have I got everything I need to erect the syringe pump?

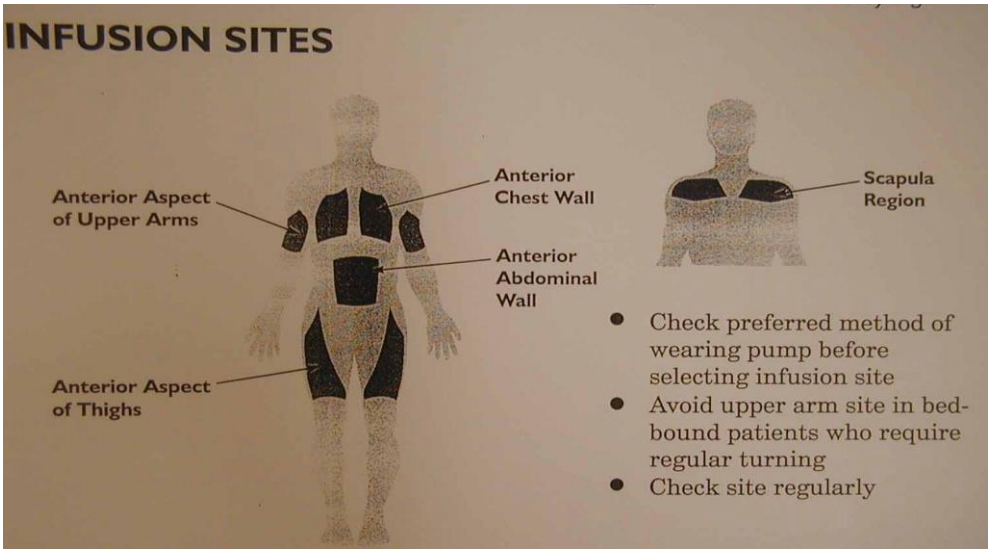
9. SITE SELECTION

9.1 Undertake Risk Assessment – choosing an appropriate site should be informed by the patient's choice and level of mobility**.**

Appropriate Sites	**Sites to Avoid**
Anterior chest wall	Sites over a bony prominence
Scapula	Areas of scar tissue
Anterior abdominal wall	Areas of inflamed / infected /irradiated skin
Anterior/Lateral aspects of upper arms.	Broken skin
Anterior aspects of both legs	Oedematous limbs/abdominal ascites

(NHS Education for Scotland 2011)

Body map of sites of subcutaneous infusion



9.2 When to change the infusion set/site:

- Subcutaneous sites should be changed if there is pain, swelling, inflammation, bruising or bleeding at the site.

- The site need not be changed for up to seven days, however it should be regularly assessed. (NHS Education for Scotland 2011)
- If an infusion is to be stopped before the syringe is empty disconnect the syringe from the patient and apply a sterile universal bung. A syringe that is not empty must never be taken off a pump while connected to the patient.

10.0 DECONTAMINATION OF THE CARE ENVIRONMENT & EQUIPMENT - GUIDANCE & PRINCIPLES

10.1 Cleaning issues

Every syringe pump must be cleaned after patient use in accordance with manufacturer's guidance.

- The outside surface should be cleaned between patients by wiping with a soft lint free cloth dampened either with a solution of mild detergent. This should be followed by disinfection using a 1000ppm solution of a chlorine releasing solution e.g. Actichlor/ Haz tabs (McKinley, 2007).
- The threads of the screw that the actuator moves along can be cleaned with a small dry bristled toothbrush soaked in detergent and water to remove debris or other particles. This should be followed by disinfection if contaminated with body fluids or used in the care of a patient with a known infection /communicable disease. It is important that any disinfectant is thoroughly wiped off and the equipment dried prior to storage or reuse.
- On completion of decontamination the equipment prior to being placed into storage or reused should be marked that it has been decontaminated as above and signed & dated by the individual who undertook the decontamination.
- DO NOT clean the syringe pump with surgical spirit or abrasive cleaners.
- DO NOT immerse in water.
- Following patient use batteries should be removed and discarded in

household waste.

- When not in use the syringe pump should be stored in a dry place.

10.2 Patient, Family/ Carer Education

Any patient requiring medications via a syringe pump in Western Trust should be given a verbal explanation of the following:

- Reason for using this route.
- Information on the general care of the pump.
- Safety checks, which he/she can carry out.
- WHO, WHEN and HOW to contact a member of staff if an alarm sounds or the light stops flashing.
- Advice on showering or bathing.
- Patient information leaflet available to download from palliative care website.

11.0 IN THE EVENT OF SUSPECTED EQUIPMENT MALFUNCTION

Stop the syringe pump IMMEDIATELY

- Ensure patient safety –undertake holistic patient assessment.
- Using the McKinley T34 Syringe Pump– Alarms – Tips on problem solving (appendix 2) – try to establish the cause – if none evident – remove the device.
- Liaise with the patients GP/ Consultant (regarding the patient's condition especially if the infusion has over -infused or under- infused) for advice re further medical management.
- Replace the suspected device with another syringe pump from Team Stock.
- Maintain contemporaneous records.
- Complete an incident form.
- The McKinley T34 device should be taken out of general use, kept safe and contact made with line manager.
- If appropriate – a HAZARD Warning will be issued to other staff

- The Syringe Pump Register details will be updated for future reference

Depending on the nature of the fault, Senior Nurse Managers may forward a report to the Northern Ireland Adverse Incident Centre (NIAC).

12.0 RESOURCES

This policy is an integral component of a wider Proficiency Programme. Please see supporting documentation (Appendix 1 – 4) in conjunction with this policy.

13.0 EQUALITY SCREENING

This policy has been drawn up and reviewed in the light of Section 75 of the Northern Ireland Act (1998) which requires the Trust to have due regard to the need to promote equality of opportunity. It has been screened to identify any adverse impact on the 9 equality categories and no significant adverse impacts were identified, therefore, an Equality Impact Assessment is not required.

APPENDIX 1

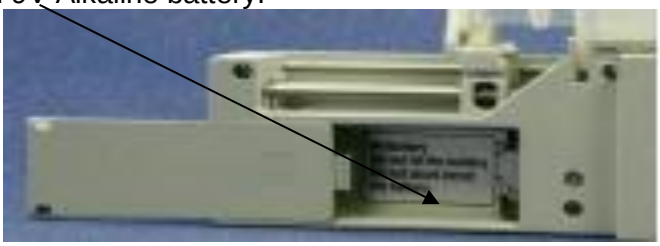
PROCEDURE FOR SETTING UP A SUBCUTANEOUS INFUSION OF MEDICATION USING THE MCKINLEY T34 SYRINGE PUMP

Action	Rationale
Prior to procedure – ensure that all equipment necessary is available and in good working order. That the syringe pump is a McKinley T34 - It has been cleaned prior to use as per Western Trust Policy. - It has received its annual maintenance check as recommended by McKinley (2007). - That the Team register re: pump location is maintained.	To avoid unnecessary stress to the patient and family. To ensure that Western Trust Policy is adhered too. To reduce transmission of micro-organisms. To ensure that the devise is in good working order. To ensure syringe pump stock can be accounted for.
Prepare the patient/family by explaining the benefits of using the syringe pump in relation to patient comfort and optimal symptom control. If the adult is unable to give consent the procedure should be discussed with the GP and consent obtained as per Western Trust and DHSSPS (2003) Policy. (see point 4.2)	To obtain informed consent and co-operation by: - Opening sensitive channels of communication. - Offering explanations. - Answering questions. - Giving instruction. - Providing opportunity for patient/carers to share feelings and concerns.
Undertake an individualised Holistic Risk Assessment as per Western Trust Policy	To identify possible risk to the patient/ carer's. - To reduce the likelihood of potential risk, injury, accident i.e. Needle Stick Injury - To safely manage identified risk factors - Maintain patient/carer safety.

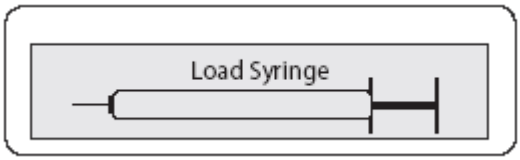
Administration of Medications via Syringe Pump

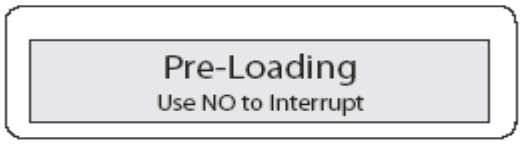
Action	Rational
Wash and dry hands thoroughly and put on protective powder free disposable gloves Latex or Nitrile gloves and plastic apron.	To comply with N. Ireland Regional Infection Control Manual (2008) and Best Practice for Aseptic Non Touch Technique (ANTT)
All prescribed medications should be administered in accordance with • NMC (2008) Standards For Medicines Management • All relevant Western Trust Policies & procedures. • Comply with ANTT principles and procedures in preparation and administration of drugs.	To ensure safe administration of medicines.
Specific considerations: **Where Controlled drugs are prescribed**: Western Trust policy states that a second checker is required in the administration process in the following circumstances: • Administration of a Schedule 2 controlled drug • Complex calculations • Setting up of infusion pumps **In a hospital setting two registrants must always carry out checks.** In a community setting, this is recommended but may not always be possible.	NMC (2008) Standards for Medicines Management **Re: Drug Calculations / Controlled drugs** Some drug administrations can require complex calculations to ensure that the correct volume or quantity of medication is administered. In these situations, it is good practice for a second practitioner ***(a Registered professional)*** to check the calculation independently in order to minimise the risk of error **– where this is not possible a suitable person who has been assessed as competent may sign.** The use of calculators to determine the volume or quantity of medication should not act as a substitute for arithmetical knowledge and skill.

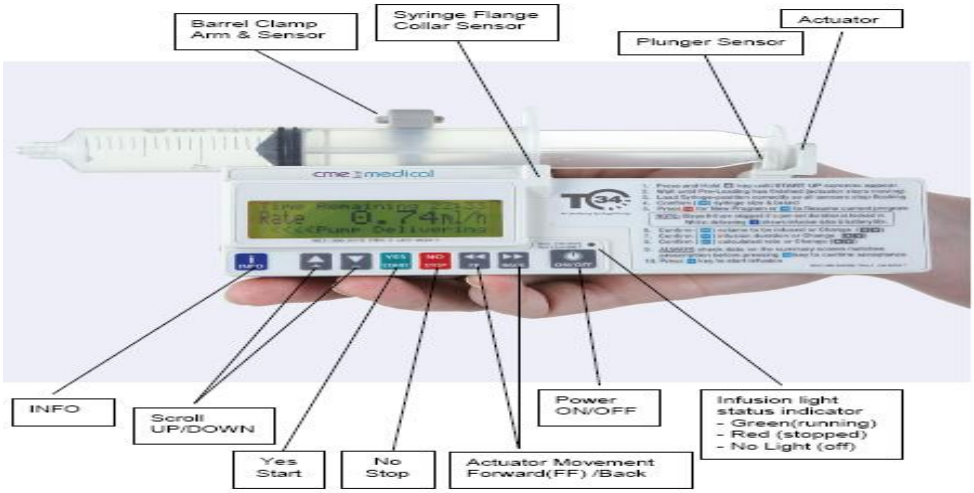
Action	Rationale
- Using a BD Plastipak syringe (20/30ml) Prepare new syringe with prescribed medication as per NMC Standards for medicines Management (2008). When using a **20ml** BD Plastipak syringe measure to **18mls** When using a **30ml** BD Plastipak syringe measure to **24mls** Please note that there may be a variance displayed on the pump – a variance of 0.5mls can be expected - Invert the syringe mix, observing for precipitation or discoloration of medication. - Once syringe is filled – attach the adhesive label detailing contents as recommended by the DHSSPS (2007).	Dickman et al (2011) recommend a 20ml Luer Lok syringe (minimum). If the length of fluid exceeds 20ml, or to reduce the concentration of the drugs – a 30ml - 50ml syringe may be used if recommended by Specialist Palliative Care Team). To allow for a maximum dilution in either a 20ml or 30ml syringe Volume in syringe changes depending on whether line is primed or not Could indicate incompatibility of medications and/or solution. DISCARD – if this occurs as per Western Trust Policy Re-check compatibility and mixing technique. To promote patient safety in event of transfer between community/hospital. To clearly identify medications in the syringe and to promote patient safety

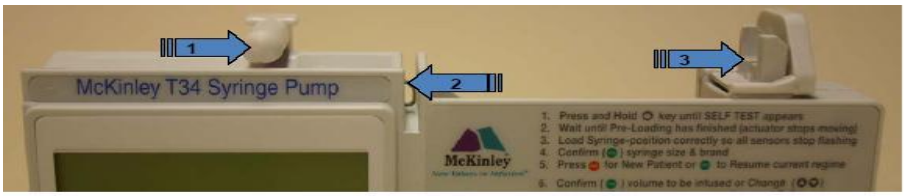
Action
PRIMING THE INFUSION LINE Butterfly  Sofset  Within the Western Trust the infusion lines used both have a low priming volume - The CME McKinley butterfly giving set will use 0.5ml - The minimised Sof-set giving set will use 0.3 ml
Install a new sealed 9V Alkaline battery.  Ensure battery life no less than **40%** when commencing a 24 hour infusion. If less than **40%** a new battery should be used

Action
The LCD display will show **'Pre-loading'**



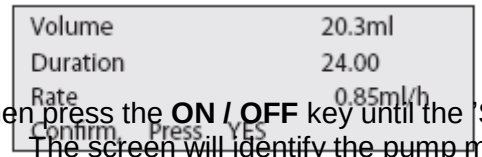






Before powering up the pump, ensure the barrel clamp is down.

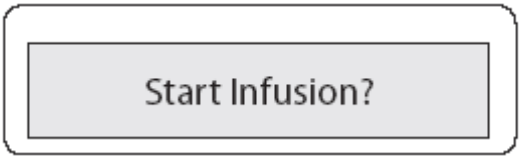
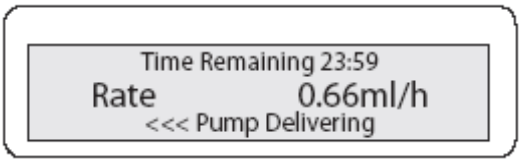
Depress the **ON/OFF** button



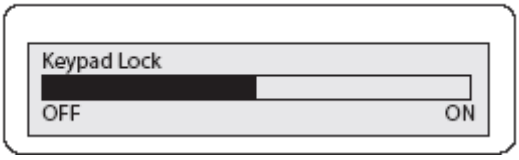
Then press the **ON / OFF** key until the 'Self-Test 'screen appears.

- The screen will identify the pump model.
- Reference to ownership: Western Trust.

Action	Rationale
Expose and cleanse the chosen site with an alcohol wipe – allow the skin to dry for 30 seconds (Royal Marsden, 2008). Do not retouch the site. Be guided by - (Information re site selection)	To reduce the risk of contamination To reduce the incidence of pain on needle insertion, this may be cause by introducing alcohol. To promote patient choice To facilitate evidenced based decision making
Insert infusion (butterfly) needle into the subcutaneous tissue at an angle of 45 degrees with the bevel facing downwards When using a sof-set – insert the cannula at a 90 degree angle and **remove the insertion needle**	
Secure the infusion wings firmly to the skin. Loop part of the tubing over the wing of the infusion set and secure with a sterile transparent adhesive dressing e.g. Opsite – Tegaderm- IV 3000 	To ensure free flow of fluids - Prevent displacement - Allows visualisation of the site - Protects the site from infection.
Ensure safe disposal of SHARPS, directly after use into an approved sharps box as per N. Ireland Regional Infection Prevention and Control Manual (2008)	To reduce the incidence of NEEDLE STICK INJURY

Action	Ration
The summary screen will prompt to – **START** Infusion?  Press YES to confirm	
Summary screen will provide information on  The Green LED indicator **flashes.**	The time remaining The rate And confirm that the pump is delivering

To activate the Keypad lock – press and hold the **INFO key** until a chart is displayed showing a 'progress bar' moving from left to right.



Hold the key until the bar has moved completely across the screen and a bleep is heard to confirm the lock has been activated.

Although the keypad lock is on, the following buttons are still active **NO/ STOP, YES / START, INFO**

To deactivate the keypad lock – Repeat the procedure above. The bar will move from right (LOCK) to left (UNLOCK) and a bleep will be heard.

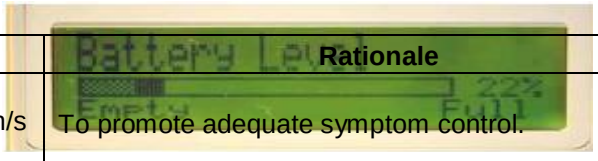
Where the decision has been made to use a plastic locked box ensure that the protective plastic cover is correctly in position

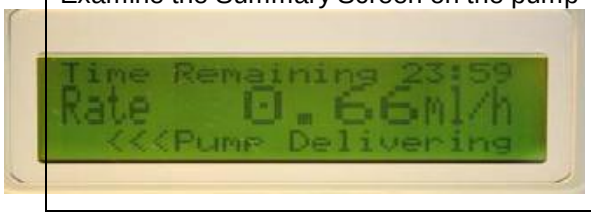
Ensure that the single patient use holster is utilised

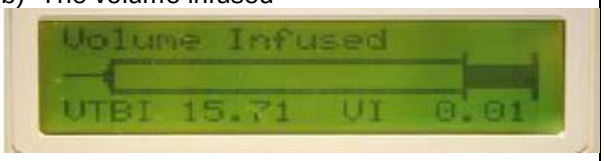
Action	Rationale
Following procedure, remove protective powder free disposable latex/nitrile gloves Wash and dry hands thoroughly	To comply with N. Ireland Regional Infection Control Manual (2008). To comply with safe technique and practice.
Ensure the patients comfort	To offer further reassurance, alley fear / anxiety. Create an opportunity for patient / family to recap pertinent information.

In a hospital setting the first monitoring check should be carried out 30 minutes after starting the syringe pump then monitoring check should be carried out 4 hourly. In the community setting a daily monitoring check is carried out. NB this is dependent on the individual patient assessment carried out by the caseload holder and may be negotiable following discussion with medical, nursing team. Any decision should be documented in the patient's notes. Observe for complications such as- - Pain, swelling, redness, infection, bruising or oedema. - Blood in the infusion line. - Crystallisation - Disconnection - Infusion not progressing - Infusion progressing too quickly Encourage and educate the patient / carer on how to monitor the devise and infusion site 4hrly – as well as – ACTION to be taken in event of any of the above.	To ensure timely, efficient intervention as / when required re: Optimal symptom control. Site maintenance **Drug compatibility.** To promote patient / carer empowerment and shared care.
Ensure the patients comfort Provide Western Trust Patient Information leaflet	To offer further reassurance, alley fear / anxiety. Create an opportunity for patient / family to recap pertinent information.

Monitoring Checks – McKinley T34 Syringe Pump



Action	Rationale
Ask the patient about - The effect and side effect of prescribed medication/s **Observe** (a) The subcutaneous site of infusion for abnormalities or signs of infection (b) That the drugs are clear and there is no evidence of crystallisation (c) That the infusion line is clear, and unobstructed.	To promote adequate symptom control. To ensure that the site is absorbing the drugs To ensure drugs are compatible To ensure the infusion line is free from 'obstruction'
Examine the Summary Screen on the pump 	It will provide information on (a) The infusion time remaining (b) The rate in millilitres (mls) per hour

Depress the blue **INFO** key <u>Once</u> 	It will provide information on (a) The volume to be infused (b) The volume infused 
Depress the blue **INFO** key <u>Twice</u> Less than **40%** change battery	The screen will display information about the percentage of battery life remaining
If problems evident – - Low battery - Site issues - Uncontrolled symptoms - Infusion not progressing - Infusion progressing too quickly	Ensure the comfort and safety of the patient and ensure appropriate inventions are implemented promptly.
IMPORTANT SAFETY ISSUE TO CONSIDER **<u>If an infusion is to be stopped before the syringe is empty, disconnect the syringe from the patient and apply a sterile universal bung.</u>**	**<u>To avoid an inadvertent bolus dose</u>**
If the site tissues or shows signs of infection. Stop infusion and dispose of remaining contents. Do not use remaining medications in the syringe. Recommence a new 24 hour infusion as prescribed	To ensure patient safety and ensure that correct prescribed medications are being administered
Complete Documentation to include: - Patient Daily assessment record - Syringe Pump Monitoring Chart	To comply with NMC (2009) record keeping

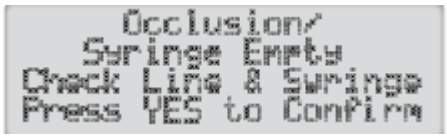
APPENDIX 2

ALARMS/ ALERTS

When an **alarm** is activated:

- The infusion stops
- An audible alarm sounds
- The operation LED turns from green to red

Alerts

Alarm	Possible Cause	Action
Occlusion or syringe empty 	Kinks in tubing, obstruction of infusion set	Remove occlusion – restart – inform the person in charge of care.
	Actuator has reached minimum travel position	End of program – switch off pump and inform the person in charge of care.
Syringe displaced 	Syringe has been removed or displaced	Check and confirm syringe seated correctly and resume – Inform the person in charge of care.
	Stop button pressed for more than 2 minutes	To re- start – press Yes.

When an **alert** is activated:

- The infusion continues
- 2-3 bleeps are heard every 3-4 minutes
- A screen message indicating the cause of alert is displayed

Alert	Possible Cause	Action
Near end of infusion	15mins from the end of infusion	Nurse / Dr to prepare to change syringe.
End of program	Infusion complete	End of program – switch off pump and inform the person in charge of care.
Low battery	Battery is almost depleted	Prepare to change battery.
End battery	Battery is depleted	Change battery.

APPENDIX 3

Removal and Disposal of Infusion Set and Syringe Pump

Action	Rationale
The infusion set should be removed by (a) An appropriate healthcare professional. **OR** (b) A competent Nursing Auxiliary under the supervision of a Registered Nurse. In accordance with N. Ireland Regional Infection, Prevention and Control Manual (2008)	To prevent Needle-Stick Injury, to ensure the procedure is carried out safely.
Empty syringes should be discarded in the blue-lidded Sharps container. **RE: Disposal of Controlled Drugs** Any medication remaining in the syringe should be measured – volume to be discarded should be recorded before being ejected - from the syringe into soap infused paper towel to the blue-lidded sharps container/ disposal directly into sewerage system (HSSPS, 2013) (a) Disposal of Controlled Medications (b) NMC Guidance (2008)	To ensure the drugs are rendered irretrievable and prevent leakage of medication from the blue lidded container. To account for unused Medications Particularly - Controlled Medications.
The needle site should be inspected - If necessary cover with a dry sterile dressing or plaster (If patient has no allergies) - Document the condition of the needle site on removal	To reduce the risk of infection and wound leakage.
If the syringe **pump** is no longer required – the battery should be removed and discarded via house hold waste *(it should not be discarded in the blue lidded container)*	To reduce the risk of cross infection To reduce the risk of combustion during incineration
The device and associated equipment should be cleaned as per manufacturer's instructions – see above.	To reduce the risk of cross infection.
Ensure that the Syringe **Pump** Register has been amended	To ensure transparent tracking of each devise. To ensure annual maintenance checks.

APPENDIX 4

In Event of Expected Patient death

Action	Rationale
Doctor to be informed of the death and consent for removal of syringe pump obtained	To gain Doctors consent to discontinue medical treatment.
Remove the battery from the syringe pump as soon as possible.	To prevent family distress from the 'whirring' noise made by the devise whilst in operation.
After the death unless there is going to be a post mortem – remove the infusion set and syringe pump and dispose of contents of syringe and equipment as above.	
Ensure the device and associated equipment is decontaminated (see section 10.1) Register has been amended as before.	To reduce the risk of cross infection To ensure transparent tracking and maintenance of the device
In the event of an unexpected patient death	
If t**he patient has to undergo post mortem examination. Stop the infusion and switch the syringe pump off (or remove the battery).** - Leave the body and all devices intact. (*The coroner considers the body and immediate area as a potential crime scene especially if the death is unexpected, accidental or unexplained)* - Inform the medical team promptly - Comfort and support the family and explain what is going to happen **In community setting** - Wait until the Police arrive Liaise and forward pertinent information / Documentation Inform Line Manager of patient death – and complete serious adverse incident (SAI) if appropriate	To ensure evidence is not corrupted. So that he/she can begin the process of post mortem investigation and mobilise the Police/ Coroner. To help reduce family anxiety by offering information and explanations Re: post mortem examination To ensure that pertinent information /documentation/equipment is removed from the patient's home. To maintain open channels of communication

Resources
Please see under appendices 1 and 2

REFERENCES

Association for Palliative Medicine and the Pain Society. (2002), The Use of Drugs beyond Licence in Palliative care and Pain Management, (Available on line)

CME McKinley. (2007), T34 Ambulatory Syringe Pump, Operation Manual.

Department of Health, Social Services and Public Safety. (2003), Good practice and Consent: Consent for Examination, Treatment or Care. DHSSPS.

Department of Health, Social Services and Public Safety. (2007), National Patient Safety Agency.

Department of Health, Social Services and Public Safety. (2008), N. Ireland Regional Infection, Prevention and Control Manual. DHSSPS.

Department of Health, Social Services and Public Safety. (2009), Safe Management of Controlled Drugs a Good Guide to Practice in NI (DHSSPS) www.palliativedrugs.com

Department of Health, Social Services and Public Safety (2013) Safer Management of Controlled Drugs A guide to good practice in primary care (Northern Ireland) DHSSPS

Dickman , A. and Schneider,J. (2011), 3rd Edition. The Syringe Driver Continuous Subcutaneous Infusion in Palliative Care.

NHS for Scotland (2011) Guidelines for the use of the CME McKinley T34 Syringe Pump for Adults in Palliative Care www.nes.scot.nhs.uk/pharmacy

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

Nursing Midwifery Council. (2009). Record Keeping: Guidance for nurses and midwives. NMC. London.

Palliative Adult Network Guidelines. (2011), 3rd Edition (PANG)

Royal Marsden Manual of Clinical Procedures and Policies. (2008), 7th Edition. www.rmmonline.co.uk accessed July 2010.

The Rainbows Childrens Hospice Guidelines (2013) 9th Edition. Basic Symptom Control in Paediatric Palliative Care. Produced by together for short lives.

Twycross,R. and Wilcock,A. (2011) 4th Edition Palliative Care Formulary Palliativedrugs.com Ltd

Amendments to Policy for the Use of the CME McKinley T34 Ambulatory Syringe Pump for Adult Paediatric Patients (February 2013, Reference Number Corp13/003)

Reason for Amendments: To update Adults section and to include Paediatrics in the Policy.

Amendments as follows for Adults:

Page No./ Section:	**Amendments**
Page 5, section 4.1	NMC 2008 changed to 2009
Page 7	Changed to up to a maximum of 96 hours from 72 hours (** note this is to allow for 2 day Bank holidays combined with a weekend)
Page 12, section 8.2, 4th Bullet point	Western Trust stock removed – replaced with 'Community Device'
Page 13, section 9.1	• Areas of inflamed/infected skin – 'irradiated skin' added • Anterior aspects of upper – 'arms' added • Anterior aspects of both legs – changed to 'both upper legs' • Change from lymphoedematus limbs to 'oedematus limbs/abdominal ascites'
Page 13, section 9.2	When to change the infusion set/ site: Removed: • Sites can be left intact if satisfactory for up to 3-4 days (NHS Lothian 2003; Royal Marsden 2008) Changed to: • The site need not be changed for up to seven days, however it should be regularly assessed. (NHS Education for Scotland 2011) Removed: ➢ If either the dose of drugs, or the combination of drugs in the syringe change (Mitten, 2001. Morgan, 2004)
Page 13, section 9.3	Removed: ➢ 'to avoid the potential risk of syphonage ensure syringe pump is placed at same level as or lower than the infusion site
Page 14, section 10.1, bullet point 1	Removed: ➢ 'ensure that any sticky residue from temporary labels applied to the syringe pump has been removed'
Page 15, section 10.2, bullet point 2	Removed: ➢ 'rinsed' and inserted 'wiped' inserted ➢ 'the need to avoid mobile phones in the vicinity of the pump'

Page 17	<u>Administration of medication via syringe pump</u> Included 'when using 20ml B.D. Plastipak syringe measure to 18mls When using 30ml B.D. Plastipak syringe measure to 24mls Included 'to allow for maximum dilution in either 20ml or 30ml syringe Please note there may be a variance displayed on the pump – a variance of 0.5mls can be expected. To clearly identify medications in the syringe Priming the infusion line 0.3ml changed to 0.5ml Included 'Ensure battery life no less than 40% when commencing a 24hour infusion. If less than 40% a new battery should be used'
Page 19	The CME McKinley butterfly giving set will use 0.3ml Changed to: The CME McKinley butterfly giving set will use 0.5ml Every 64 seconds – removed
Page 21	Included: 'when using the FF and Back buttons to move the actuator press until alarm sounds'
Page 23	Under summary screen will provide information on - box removed
Page 24	Removed: • Provide CME McKinley patient reference Changed: • 'In the community setting a minimum of two monitoring checks daily' to • 'In the community setting a daily monitoring check is carried out'
Page 25	• 'Kinks' changed to 'obstruction' Included: • If the site tissues or shows signs of infection, stop infusion and dispose of remaining medication contents as per Trust policy. Do not use remaining medication in the syringe. Recommence a new 24hour infusion as prescribed • To ensure patient safety and ensure that correct prescribed medications are being administered.
Appendix 2 - Page 26	Under 'Alarm' remove: • 'the LCD screen displays a text message and instruction to help identify/resolve the cause'
Appendix 2 - Page 27	Added all of the page in relation to 'Alerts'

Appendix 3 – Page 28, row 2	Included: RE: Disposal of Controlled Drugs Any medication remaining in the syringe should be measured – volume to be discarded should be recorded before being ejected - from the syringe into soap infused paper towel to the blue-lidded sharps container/ disposal directly into sewerage system (HSSPS, 2013) (a) Disposal of Controlled Medications (b) NMC Guidance (2008)
Appendix 4 - Page 29	Expected and Unexpected were together in one section – this has been divided into 2 separate sections 'Expected death' and 'Unexpected death' Under the 'Expected death' section: • The following has been left in - 'Remove the battery from the syringe pump as soon as possible'. • The following line has been removed: 'EXCEPT if the patient has to undergo post mortem examination (see below).' • Last paragraph: 'Inform Line Manager – regarding location of equipment and patient documentation' has been reworded to 'Inform Line Manager of patient death – and complete serious adverse incident (SAI) if appropriate'.
Page 30	References updated