Lincolnshire Community Health Services NHS Trust

# Lincolnshire Policy and Procedure for the use of the CME MEDICAL McKinley T34 Syringe Pump and the BD Bodyguard T Syringe Pump for Adults in Palliative Care

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## Version Control Sheet

| Version | Section Paragraph Appendix | Version, Description of Amendments | Date | Author Amended by |
|---|---|---|---|---|
| 1.6 | | Front page logo update pg6 4.4 remove "through identified trainers" pg.8 remove paragraph under Caution titled "Graseby Syringe Pumps" pg.9 7 Add "Relative" to Contraindications, remove the "s", add "seek Specialist Palliative Care Advice" pg.9 under Disadvantages/Risks remove "prescriptive errors" and "medication errors relating to drug or dose" pg.9 8. Replace "Their" with "The patient and carer" pg.10 8 Remove paragraph starting "Patients should be aware that there is a small risk of mobile" pg109insert http://www.cmemedical.co.uk/onlinetraining/ Change "Flowchart Appendix 2 to 1. pg13/14 2. Highlighting of section for LCHS staff only. Add "ULHT - All batteries must be supplied by Ward Managers." pg.16 6. Identification of the labelling of the syringe for each Trust, ULHT /LCHS. Pg.22 9.8 Add "does not" to the phrase "However, CME McKinley does not recommend the use of alcohol……" Removal of Appendix 1 – "For teams not trained in the use of McKinley T34 syringe Pumps" Pg. 30 New Appendix 1. "Flowchart for Accessing McKinley Syringe Pump Training in Palliative Care". Removal of box "Generic section a guide to practice to be completed. Pack to be completed first." On the ULHT Route of the Flow Chart. Appendix 2. Changes to the Patient Information Leaflet Putting the word silicone" in front of needle, paragraph 5 and 7. Adding, in What is a syringe Pump "A compact lock box protects the Pump from damage or displacement of the syringe." Add "The following is for the use of a syringe Pump at home only" in bold print, after "The alarm will also sound 15 | October 2014 | |

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| | | minutes before all the medication is delivered." Remove the paragraph<br>"There is a small risk of mobile phones"<br>on pg. 2 | | |
| **2** | | Minor changes throughout to update references and make current and ensure Lincoln wide collaborative approach. Addition of training pack | Nov 2016 | |
| **3** | | Review and update | July 2017 | |
| **4** | | Page 5: update refs<br>MRHA, CME McKinley Operation Manual. Removed Standards for medicines management (NMC 2015) as this was withdrawn by NMC in<br>Jan 2019 Replaced above with Professional guidance on the safe and secure handling of medicines (Royal Pharmaceutical<br>Society, 2018) And Professional guidance on the administration of medicines in healthcare settings (Royal<br>Pharmaceutical Society, 2019)<br>Page 6: check update ref NMC<br>Page 7: password controlled by clinical engineering IEC Standards and NPSA ref update Syringe Brands – Hospice/ULHT BD Plastipak Community Omnifix&BD Plastipak Updated ref. (CME Medical T34 Operation Manual 2019). Page 8: include up to date NICE Guidelines reference as recently updated (Section 7) Page 9: check updated refs Mitten 2001, NMC, MCA Updated reference (Twycross et al, 2017) Removed (NMC 2015) as withdrawn – replaced with (RPS, 2018; RPS,<br>2019)<br>4.4 Added LCHS criteria Section 9: Correct organisational term for training<br>Section 10: MRHA ref/ definition and MRHA Devices Bulletin updated<br>10.LCHS 'How do I' guides referenced<br>Reference to audits removed | Dec 2019 | Anna Chippendale Macmillan Palliative Care CNS (ULHT)<br>Carol Gent Macmillan Palliative Care CNS (LCHS)<br>Jacki Rizan Macmillan Palliative Care CNS (LCHS)<br>CONTRIBUTERS Countywide Macmillan Palliative care Specialist Group<br>Elaine Wilkinson |

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| | | 11. added re LCHS asset register<br>Section 2 – MRHA battery changes. Amend to 9V alkaline with updated MRHA ref. Add MRHA and CME documents to appendix. Additional comment to be added of any variations to line.<br>Addition of reference to SOP for tracking syringe Pumps out of hospital.<br>(Add in as appendix ULHT tracking process.<br>Page 14: updated version PANG & CME references<br>Changed ref. (MRHA, 2018)<br>Page 15: Updated PCF and PANG ref. as Electronic PANG available<br>Page 16: Battery add in protocol. Add in comment about batteries<br>Removed NMC Standards of Medicines Management (2015) replaced as previous notes with RPS references Updated PCF reference Updated edition of (Dickman & Schneider, 2016).<br>Page 17: Check McKinley information updated Bold out<br>'loading of correct syringe'<br>Page 20: Add info re battery sizes<br>Page 21: Section 21update re cleaning Page 23: Section 11- Reference national guidance re infusion monitoring frequency/4 hourly Nursing Times ref syringe Pumps indicates 4 hourly checks best practice<br>Page 23: Alterations to monitoring during infusion wording Added ref for MRHA (2019)<br>9.3 Added 'sterile bung' | | Macmillan Palliative Care CNS (LCHS) Kay Howard Macmillan Palliative care CNS (LCHS) Dr G Keenleyside, Medical Director in Palliative Medicine Lincolnshire Jill Edwards Specialist Nurse Practitioner St Barnabas Alison Lister Marie Curie Kerrianne Lawson Deputy Sister St Barnabas LCHS Adult integrated Governance and Quality Group Clinical Engineering ULHT Jo Andrew |

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| | | 9.3 Caution box added 9.8 LCHS cleaning recommendations for visibly soiled pump added<br>9.8 alcohol spray removed<br>Pge 16. Section 2.1 Added information about visual check of equipment | | |
| 5 | Throughout document<br><br><br><br><br>Pge 7<br><br>Pge 10<br><br>Pge 15<br><br>Pge 18<br><br><br><br><br><br>Pge 19<br><br><br><br><br>Pge 24<br><br>Page 31<br><br><br><br>APPENDIX 4 | Whole policy reviewed to align with rollout of BD Bodyguard Syringe Pump<br>Bodyguard T added to all references to McKinley T34<br>References and hyperlinks checked and updated or removed.<br><br>Deleted illustration<br><br>Added reference to BD BodyGuard T Directions for use<br><br>Updated the link to training<br><br>Deleted illustration and section on main component parts of T34.<br><br>Added section on main differences T34/BD BodyGuard<br>Added that purge option has been disabled on the BD BodyGuard<br><br>Re-ordered sections on battery warnings and removed duplicated information. Added that battery type 6LR61 required for T34 and BodyGuard T<br><br>Added battery life information for BD BodyGuard T<br><br>Added information re date and time display on BD BodyGuard<br>potentially not reflecting actual date and time.<br>Equality analysis removed as not required for guidance | Nov 2021 | Kay Howard, Macmillan CNS, LCHS |
| 6 | Throughout document. | Whole policy reviewed and updated<br>References and hyperlinks checked and updated or removed. | May 2024 | |

**ACKNOWLEDGEMENTS**
This policy and procedure for the use of the CME McKinley T34 Syringe Pump and the BD Bodyguard T syringe Pump for Adults in Palliative Care has been written and adapted, with the kind permission, from guidance produced by the following organisations:

- McKinley T34 Ambulatory Syringe Pump Operation Manual (2017)
- BD BodyGuard T Syringe Pump directions for use (CME, 2021)
- NHS Education for Scotland Guidelines for the use of the CME McKinley T34 Syringe Pump for Adults in Palliative Care (2020) ` (scot.nhs.uk) [Accessed 03/06/24]
- St Barnabas Lincolnshire Hospice Policy and Protocol for the usage of the T34 McKinley Syringe Pump for subcutaneous Infusions (2010)

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# Contents

**SECTION 1 POLICY FOR THE USE OF CME MCKINLEY T34 SYRINGE PUMP AND THE BD BODYGUARD T SYRINGE PUMP**

Lincolnshire Policy and Procedure for the use of the CME MEDICAL McKinley T34 Syringe Pump and the BD Bodyguard T Syringe Pump for Adults in Palliative Care.

## Contents

# Procedural Document Statement

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| **Background Statement** | The aims of this policy are: to ensure efficient and safe practice across Lincolnshire in the use of the battery operated McKinley T34 and BodyGuard T syringe pump in palliative care for adults; to improve the standard of care provided to patients; and to minimise hazards |
| **Key words** | Syringe Pump, McKinley T34, BD Bodyguard, palliative and end of life care |
| **Responsibilities** | All registered nurses who have undergone the training and are competent in the management of syringe Pumps (as outlined in this policy) who are employed by organisations who have ratified this policy |
| **Training** | Face to face theoretical training should be undertaken at least 2 yearly. This guidance can only be implemented once staff have completed the theoretical workbook and have received face to face theory and practical skills training in the operation of the McKinley T34/BD BodyGuard T syringe Pump.<br><br>Nursing staff administering medication via the syringe Pump must have current registration and participate in mandatory updates provided by their organisation. |
| **Dissemination** | LCHS website, EOLC website (www.eolc.co.uk), disseminated internally within relevant organisations |
| **Resource implication** | Delivery of face to face training, Practitioner time to complete associated workbook, Supported clinical practice until competent |
| **Consultation** | None envisaged as necessary – not a new policy |
| **Monitoring** | Review of incidents/datix, clinical supervision |
| **Equality Statement** | As part of our on-going commitment to promoting equality, valuing diversity and protecting human rights, Lincolnshire Community Health Services NHS Trust is committed to eliminating discrimination against any individual (individual means employees, patients, services users and carers) on the grounds of gender, gender reassignment, disability, age, race, ethnicity, sexual orientation, socio-economic status, language, religion or beliefs, marriage or civil partnerships, pregnancy and maternity, appearance, nationality or culture. |

# 1. Introduction

Syringe drivers are used for the continuous delivery of medication into the subcutaneous tissue of adults for whom oral administration would be problematic. It is well-established practice in the care of adults with palliative and end of life care needs, to use syringe drivers in the control of symptoms, in a variety of settings. The effective use of syringe drivers can enhance the quality of life. The McKinley T34/ BodyGuard T syringe driver is a portable, battery operated device for delivering medication by continuous subcutaneous infusion.

This Policy should be read in conjunction with

- MHRA-Alerts (Various dates)
- The Code Professional Standards of Practice and Behaviours for Nurses, Midwives and Nursing Associates (NMC 2018)
- Professional guidance on the safe and secure handling of medicines (Royal Pharmaceutical Society, 2024)
- Professional guidance on the administration of medicines in healthcare settings (Royal Pharmaceutical Society, 2023)
- CME Medical McKinley T34 Operation Manual Revision 1.6(2019)
- BD BodyGuard T Syringe Pump directions for use (CME, 2021)

# 2. Scope

The aims of this policy are to ensure efficient and safe practice across Lincolnshire in the use of the battery operated McKinley T34 and BodyGuard T syringe pump ; to improve the standard of care provided to patients; and to minimise hazards.

- This guidance can only be implemented once staff have completed the theoretical workbook and have received face to face theory and practical skills training in the operation of the McKinley T34/BD BodyGuard T syringe Pump.
- Nursing staff administering medication via the syringe Pump must have current registration and participate in mandatory updates.
- The NMC accepts that registered nurses keep their knowledge and skills up to date taking part in appropriate and regular learning and professional development activities that aim to maintain and develop competence and improve performance (NMC 2018)
- This policy is relevant to all adult patients receiving care in Lincolnshire.

# 3. Responsibilities

- Employers are responsible for ensuring that all staff using medical devices are appropriately trained. All health care professionals and support workers have a personal responsibility and accountability to ensure they receive training in the safe use/observation of any medical devices they need to use (MHRA 2013).

- It is the responsibility of managers to ensure that user training is received by the appropriate staff and documented. Comprehensive records of procedure and medical device training must be kept in a central register.

- Professionals undertaking the setting up and replenishing of syringe pumps or providing care to patients with syringe pumps, must ensure that they are competent and confident and have the required level of knowledge and skills. Professionals should record any training received within a training log (revalidation) recording learning objectives and outcomes.

- Staff who use these devices must be competent in undertaking the management and use of syringe pumps and will be provided with practical instruction and training within the organisations covering both practical and technical matters (MHRA 2015), and are required to attend training updates as appropriate (in LCHS this is at least every two years)

- Following training, staff will be expected to demonstrate the following competencies in the use of the syringe pump and to maintain these competencies keeping up to date with current practice:

    - The ability to communicate the rationale for the use effectively with patients, carers and other professionals.
    - The selection of appropriate equipment and the ability to explain the rationale for doing so.
    - A knowledge of drugs and drug combinations that can be used and their possible side effects and knowledge of where to access additional advice.
    - Local practices relating to the prescribing, storing and documenting of the specific drugs to be used.
    - The indications for use of a syringe Pump
    - Advantages and disadvantages of use
    - Contraindications
    - Skin sites, selection, and care.
    - Identification of problems and solutions
    - Effective hand hygiene
    - Safe disposal of waste (including pharmaceutical waste)
    - The maintenance and cleaning of equipment

- When teams plan to use a syringe Pump they should ensure that the appropriate pharmacy or dispensing practice is aware if any concerns about supply and has the necessary medicines available for continuing the Pump.

- All staff will have access to and knowledge of this policy and any revision will be disseminated by managers to the appropriate team members.

# 4 CME MEDICAL McKinley T34 / BD BODYGUARD T SYRINGE PUMP

- The T34 / Bodyguard T is a small, lightweight, robust, battery-operated ambulatory syringe driver designed to deliver medication by continuous subcutaneous infusion used in conjunction with a lock box for safety.
- All commonly used syringe brands are identified, and the device calculates the syringe volume and deliver the contents as mls per hour (ml/hour) minimising the risk of programme error.
- Delivery system allows a larger volume of drug to be infused which facilitates greater flexibility of drug dose and drug combinations.
- Effective alarm systems alert to occlusions, end of infusions, near end of battery and syringe displacement if a syringe is removed or partially displaced during an infusion.
- Provision of internal log memory to record all driver events These features comply with MHRA (2015), IEC standards (2012) and NPSA (2010) requirements to ensure the safety of infusion drivers.

(CME Medical T34 Operation Manual 2019)

# 5 Indications for use of a syringe Pump

A syringe Pump may be indicated in the following circumstances:

- Intractable nausea and vomiting not controllable by other means.
- Dysphagia and the inability to swallow oral medication.
- Intestinal obstruction
- Oesophageal obstruction, due to internal/external compression
- Malabsorption of drugs
- Head and neck lesions/surgery which may cause difficulties in taking medication.
- Semi or unconscious state
- 3 PRN doses of subcutaneous medication are NOT required if there is clear rationale to commence a syringe pump.

**Contraindication – Thrombocytopenia (Seek Specialist Palliative Care Advice)**

**Cautions - Heparin and warfarin therapies and areas of oedema**

The following factors need to be considered when deciding to use a syringe Pump:

**Benefits**

- Maintains stable blood plasma serum levels of medication.
- Avoids peaks and troughs of episodic administration.
- Reduces need for repeated injections.

- Permits appropriate control of symptoms, without toxic effects of the peaks and troughs of episodic administration.
- The ability to infuse a larger volume or combination of drugs via one route.
- Usually reloaded every 24hrs.
- Accurate infusion times
- Portable, lightweight and compact, allows mobility and independence.

**Disadvantages/Risks**

- Patients may become psychologically dependent on the device.
- Inflammation or infection may occur at the site of the cannula insertion and may impede absorption and rate of delivery of drugs.
- Drug/patient and drug/diluent incompatibility.
- The barrel clamp arm could be vulnerable to damage if handled incorrectly.
- Potential cross infection risk if device not cleaned properly.
- Planning for the next 24 hours can be restrictive.
- Syringe Pump failure.

When a decision is made to use a syringe Pump, it will take some time for medication to reach therapeutic level, therefore break through doses will need to be considered (Twycross et al, 2017).

# 6 Communication with patients

Prior to starting a syringe Pump its use should be fully discussed with the patient and/ or their care partners and consent obtained. Verbal and written information should be offered and contact numbers provided to seek advice 24/7 if there are any problems with the syringe pump.

# 7 Training for staff

It is the responsibility of each individual registered nurse to ensure they keep up to date with their competency. Maintenance of skills and competence should be reviewed as part of the annual appraisal process. A mandatory face to face update training session should be attended in line with organisational requirements. or more frequently if the need is identified.

Flowchart for accessing syringe Pump training in palliative care - see Appendix B

An up-to-date record of training must be maintained centrally within each organisation (eg Electronic Staff Records).

Ensure all other health care professionals have awareness of safe handling of the equipment and who to report to.

# 8 Incident reporting

All adverse incidents or near misses involving the device or the procedure must be reported and managed as described in the organisations incident reporting policy.

# 9 Syringe Pump maintenance

In Lincolnshire, syringe pumps are serviced and maintained by ULHT Clinical Engineering, except for those owned by LCHS which are serviced and maintained by LCHS Medical Devices.

The pump is designed for ambulatory use and should withstand everyday handling. If the pump is dropped onto a hard surface, or is suspected of being dropped/damaged, subjected to excessive moisture, humidity or high temperature, the pump should be removed from service and returned to Clinical Engineering / LCHS Medical Devices (depending on who the device belongs to) to allow the operation and calibration to be checked.

All syringe pumps must be serviced at least annually to ensure their function is maintained. A service record for each syringe pump must be completed according to local policy. In LCHS this should be recorded on the asset register.

# 10 Cleaning and decontamination

Cleaning and decontamination of the syringe pump and lockbox should be carried out as required and / or between each patient use in adherence with local policy. Please discuss with your line manager access to lock box keys.

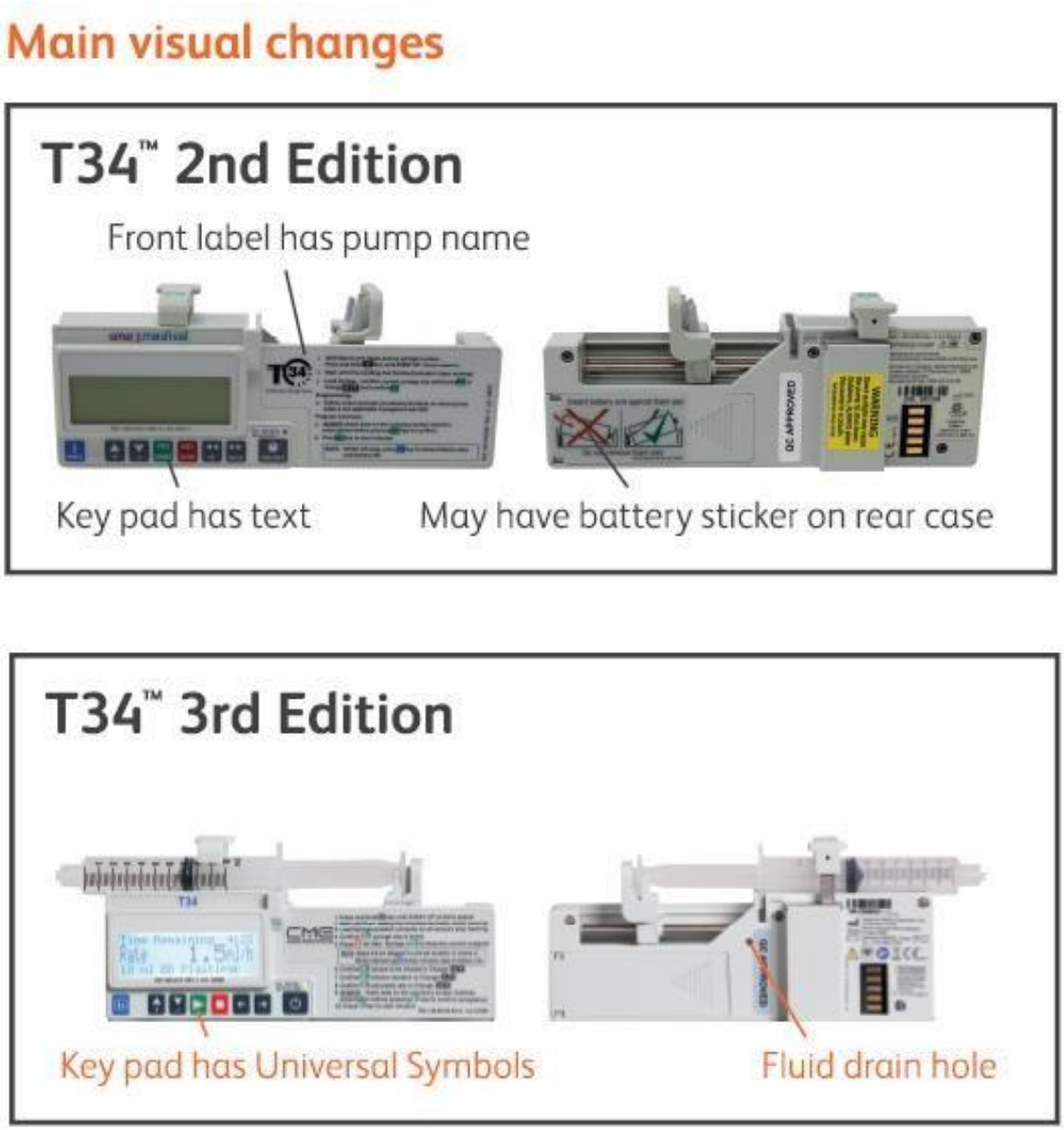
# 11 Policy monitoring and review

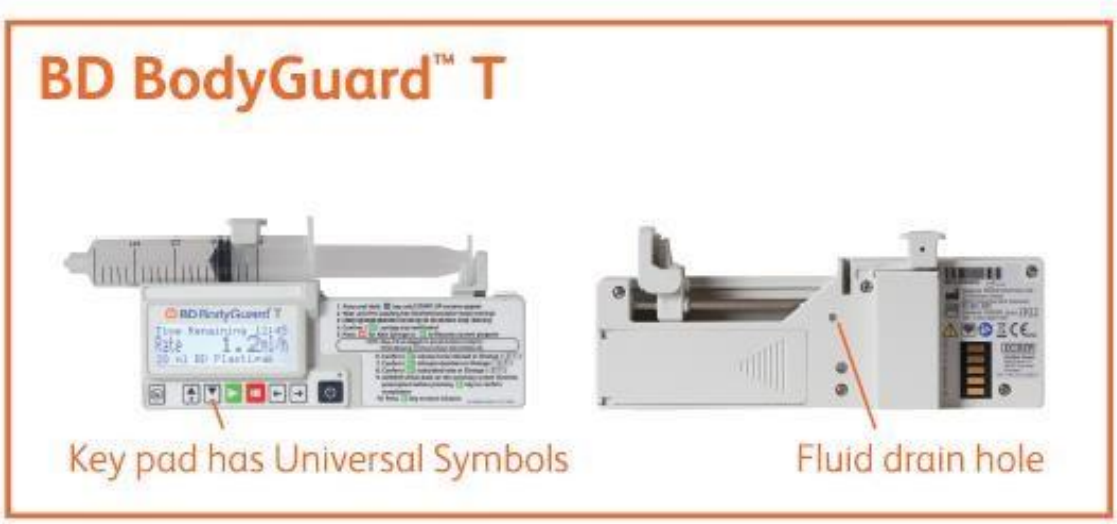
This policy and procedure will be reviewed every two years or at any such time that there are relevant changes to working practices, or from feedback through audit/learning/ incidents or from legal or statutory requirements.

# SECTION 2 – PROCEEDURE FOR THE USE OF THE MCKINLEY T34/ BD BODYGUARD T SYRINGE PUMP

## 1 CME MEDICAL- MCKINLEY T34/ BD BODYGUARD T SYRINGE PUMP

### 1.1 Main differences between McKinley T34 V2, McKinley T34 V3 and BD BodyGuard T syringe Pumps






| Changes to note: |
|---|
| Increased battery life |
| Alarm set to 15 minutes before end of infusion |
| Alarm for low battery set to minimum 30 mins before end infusion |
| Enable/disable bolus function in technician menu (this is locked out) |
| Alert for service at 1 year added |
| Date and time can be updated when turning on the pump (locked out). Record the date and time of the start of the infusion |
| Internal battery now rechargeable therefore 4 year internal battery changes not required. |

## What you need to do.

- Ensure you have completed any training requirements before utilising these devices.
- Before every use perform a visual inspection and check the model
- Change the battery before each use.
- Record the date and time of the start of the infusion.
- Ensure during handover procedure that it is stated which model is in use for that patient.
- Insert a new battery before putting the driver into storage.

### 1.2 Set up parameters

The McKinley T34/ BD BodyGuard T is calibrated in **ml per hour**. The standard delivery period for a continuous subcutaneous infusion in palliative care is 24 hours. The McKinley T34 / BodyGuard T pumps are programmed for use in adult palliative care across Lincolnshire to deliver the 'delivery volume' as displayed by the Pump **over 24 hours**. The duration is locked therefore the user cannot change it. This simplifies use and reduces the risk of errors. The pump calculates the volume, applies the pre set duration (24 hours) and calculates the appropriate rate of the infusion.

The event log displays a complete time and date stamped record of events along with a record of Pump status (volume infused, rate etc.) at the time of the event. Event logs cannot be deleted or altered. The purge option is not available.

# 2 EQUIPMENT REQUIRED.

- McKinley T34/ BD BodyGuard T syringe pump and plastic lock box. The pump must be checked before use and be clean, free from damage and serviced within the last 12 months.
- Sterile administration set (100cm with anti-siphon valve and female luer lock) with small (0.5ml) prime volume. Inspect packaging and contents/expiry dates before use. Do not use if any evidence of damage or the sterility of packets has been compromised.
- Saf-T-Intima cannula - Blue 22G/Yellow 24G
- Clear sterile semi-permeable dressing for infusion site
  Sterile 20ml or 30ml BD Plastipak or B Braun Omnifix luer lock syringe
- Additive label
- Subcutaneous infusion monitoring chart / record
- Valid patient prescription
- Prescribed medications and diluents (either sterile Water for Injection or sterile Sodium Chloride 0.9%, depending on the drugs used - see section 5 Diluents)
- Sharps receptacle compliant to local organisational policy
- Written patient information specific to McKinley T34/BD Bodyguard T syringe pump

### Storage

**In Some settings the equipment required should be contained within a suitable rigid, wipeable, lidded storage box. The box should be stored securely, in a cool dry place, where it can be readily accessed. (The box should be labelled with directions to return and should remain with the syringe pump).**

## 2.1 PRE-INFUSION CHECK OF EQUIPMENT

## McKinley T34 / BD BodyGuard T Syringe Pump

A thorough visual check of the syringe pump and lock box should be undertaken. Inspect all parts of the pump for signs of damage or wear and tear. Do not use the syringe pump if any damage is found and send the device to ULHT Clinical Engineering / LCHS Medical Devices (depending on who the device belongs for checking and servicing.

Pay particular attention to inspecting the lead screw – if there is any white plastic debris on the lead screw this is a sign of wear on the syringe mechanism.

### Battery types and use

**WARNING:** Unsafe operation may result from using improper accessories. Use only accessories and options designed for this system and supplied or recommended by the syringe pump distributor. Rechargeable batteries must not be used. Organisations are responsible for procurement of the correct battery and provision of and adequate supply.

**MRHA Recommendation** Only use a 9-volt alkaline disposable battery carrying the international marking code 6LR61 for both the McKinley T34 and the BD BodyGuard T syringe Pumps. Refer to MDA/2018/010 (MRHA,2018). CME Medical recommends using the Duracell® brand 9-volt (6LR61) battery in your T34TM pump,

**WARNING**: Check that the battery fits securely into the battery housing. If a battery within the T34/BodyGuard T housing appears loose or If you have concerns about battery fit, do not use it and arrange for the syringe pump to have a maintenance check (CME Medical, 2019). Return the pump to your service department for adjustment of the connections (100-090SM Rev.04 Software Version NCAT / NCATBOL 14).

# 3 INFECTION PREVENTION

Adhere to organisational policy regarding infection control Guidance and sharps management.

- A non-touch clean technique must be applied throughout this procedure.

# 4 PREPARING MEDICATION FOR THE SYRINGE PUMP

Please refer to the Medicines Act 1986, Royal Pharmaceutical Society guidance (2018, 2019) and local medicines management policies when preparing administration of medicines including controlled drugs.

Some organisations require two registered professionals to set up a syringe pump. However, the literature informs that this practice poses increased risk of administration errors.

# 5 DILUENTS

Certain drugs require specific diluents such as sterile water for injection and sodium chloride 0.9% as there is potential for interactions between drugs and diluents when mixed together. Please contact pharmacy or the prescriber. Information is also available at www.pallcare.info

Amount of Drugs in a syringe pump

Up to 3 drugs can be added to a syringe Pump unless there are no other compatibility issues. In the case of compatibility issues it may be necessary to consider using more than one syringe Pump.
If more than 3 drugs are required, please speak with specialist palliative care services for advice and guidance.
It is acceptable to have 4 in one syringe pump providing compatibility has been checked and PEOL specialist advice has been sought.

# 6 LABELLING THE SYRINGE

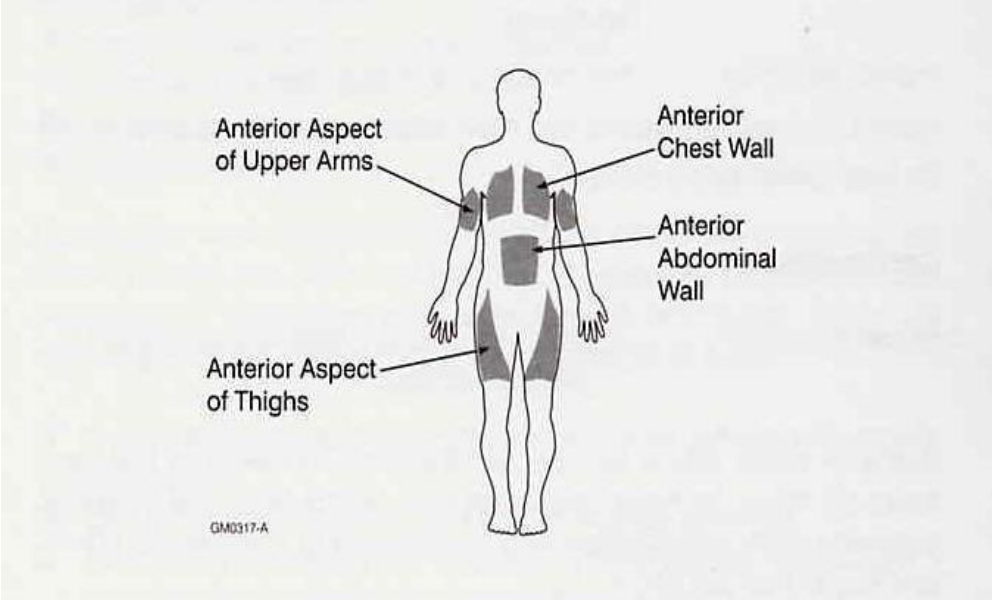
The label must not interfere with the mechanism of the syringe pump When attaching the label, ensure it does not obscure the visual scales on the syringe.
The following details are required on the label

- Patient name, date of birth, NHS number
- Medicine name(s) and batch number(s)
- Dose of each medicine
- Diluent name
- Date and time prepared
- Initials of individual(s) preparing the syringe

# 7 CHOOSING A SUITABLE INFUSION SITE

Where possible, involve the patient in the choice of a suitable site. Both the outer arm and upper thigh are commonly used. Areas suitable for subcutaneous infusion include those with a good depth of subcutaneous fat, towards the trunk of the body particularly if the patient's peripheral circulation is compromised.

**Acceptable SC cannula insertion sites are shown below:**




(Dickman & Schneider,2011)

For confused patients insertion into a suitable area on the patients back may be considered.

**The following sites should be avoided:**

Contra indications and rational

- Oedematous areas including lymphoedema/ascites (poor drug absorption and increased risk of infection/exacerbation of oedema)
- Bony prominences (poor absorption and discomfort)
- Joints/skin folds (movement may displace cannula, discomfort)
- Areas of irradiated skin (may have poor perfusion and hence poor drug absorption)
- Sites of tumour
- Sites of broken skin/ previous scarring
- Areas of inflammation
- Be aware of pressure areas in patients nursed in bed who require frequent repositioning
- The chest wall in severely frail patients due to the risk of causing a pneumothorax.

# 8 BATTERY TEST/INSERTION

When setting up the Pump always insert a new battery to ensure that there is enough charge in the battery to cover the infusion and prevent false occulsion alarms..

1. To fit the battery slide back the compartment cover at the back of the Pump. Push the battery into the compartment taking care to ensure that the +/- contacts are aligned as shown on the label inside the compartment.

2. Slide the cover back on.

3. Switch on the Pump, pre-loading will commence. Summary screen will then display battery status. Press **INFO** key and select battery level. Press **YES** to confirm.

4. Check summary screen display and verify level of battery charge. The battery life is dependent on the delivery rate. For the BD BodyGuard T this means an expected battery life of 50 hours at a delivery rate of 1ml/hr and 35 hours at a delivery rate of 5ml/hr.

5. For community patients and patients on discharge from hospital always insert a new battery at the start of the infusion. In the inpatient setting, the battery should be changed if the charge is below 15% at the start of the infusion.

6. During an infusion press **INFO** key twice to check battery level.

7. In the inpatient setting, the battery level should be confirmed at the start of each shift.
8. Ensure that the device is stored with a new battery inserted when taken out of use.

# 9 CONNECTING AND LOADING THE SYRINGE

Use the CME Medical McKinley syringe extension set with anti-siphon valve and luer lock.

If a new infusion set is required use the prime and load procedure i.e.
Draw medications/diluent to approximately 17mls in a 20ml syringe, or to approximately 22mls in a 30ml syringe. This is the maximum fill volume that the syringe pump can accommodate.
Connect infusion line. Prime the infusion line.

The syringe is now ready to load into the pump.

## 9.1 Pre Loading

- Install battery.
- Before loading syringe ensure barrel clamp arm is down
- Press **ON/OFF** key to power up Pump. The screen will display self-test showing:
  - Pump model name
  - software version
  - Pump ID
- The display will then indicate **PRE-LOADING**
- The actuator will start to move when it stops moving the **LOAD SYRINGE** screen appears.
- During PRE-LOADING a set up parameters screen is displayed showing key locked parameters:
  - occlusion
  - max rate
  - program lock
  - battery status

**NOTE**
The actuator during pre-loading always returns to the start position of the last infusion programmed. If the user regularly uses the same syringe/brand/size fill volume the actuator should return to the correct position and not require adjustment. **The actuator cannot be moved manually**. Do not force the actuator to move manually as this could damage the device.

If the actuator is not in the correct position to accommodate the syringe, leave barrel clamp arm down and **FF** or **BACK** buttons on the keypad to move actuator to fit the syringe.

**NOTE**
Hold the syringe above the device to gauge correct location. Forward movement of the actuator is limited so repeated pressing of the **FF** key may be required. Backwards movement is not restricted. Automatic actuator movement deletes any previous programme in the pump memory.

## 9.2 To Load the Syringe

The syringe graphic on the display flashes in 3 places. Lift the barrel clamp arm and load the syringe into position.

Position flange/collar and plunger first. Finally lower barrel clamp arm on top of the syringe. If correctly loaded the graphic will become solid. The screen will then display size/brand of syringe detected.

If the Pump has correctly identified the syringe brand and size press **YES/START** to confirm. If the syringe brand is not correct press **UP/DOWN** keys to scroll through the list until the correct syringe brand is found.

(If the Pump was stopped and turned off before the end of a previous infusion, the **RESUME** prompt will appear.
Press **NO** to commence new infusion.)

When the syringe/size/brand are confirmed the Pump will calculate and display the volume to be infused.

**Variance (**between visual reading and computer display)

At the start of each new infusion a visual check must be made of volume to be infused against the computer display of deliverable volume and recorded on the monitoring chart / patient record or electronic record.
**WARNING**: If the volume displayed after loading the syringe is significantly different (more than +/- 0.5ml) than the volume visually confirmed on the syringe scale, remove the syringe, turn off the Pump and then try reloading the syringe. If the problem persists, remove the Pump from use and return to Clinical Engineering for inspection, testing and re-calibration.

Ensure the summary screen details match the prescription before starting the infusion i.e., Volume to be infused / Duration.

Press **YES** to confirm acceptance of pre-set program infusion parameters.

Start infusion prompt will be displayed.

**Note:**
**Clamp must be locked on Saf-T-Intima line before connection of syringe Pump to patient.**

Site the Saf-T-Intima cannula as per policy.(This does not require priming)

Connect giving set to Saf-T-Intima cannula.

When ready to commence infusion, release clamp and press **YES** to start infusion.
Press and hold **INFO** key until display denotes **keypad locked**.
(To de-activate keypad lock press and hold until display denotes key pad lock is off).

**Note:**
It may be necessary to administer anticipatory/ breakthrough medication to relieve symptoms in the interim until the medication achieves a therapeutic level. This should be based on patient assessment and clinical judgement.

Secure Pump in lock box.

## 9.3 Temporary interruption to infusion / Resuming the Infusion

E.g if the Pump is stopped for any reason e.g., showering/bathing.

It is recommended practice for all stages to be verified by a second trained nurse:

- Press **STOP** – unlock keypad and turn pump **OFF**
- Clamp Saf-T-Intima cannula line – disconnect pump. DO NOT REMOVE SYRINGE FROM PUMP.
- Cap cannula and infusion line top, using a sterile bung, to minimise cross infection. Maintain an aseptic non touch technique.
- Document time infusion stopped and reason why.
- In the in-patient setting, store pump securely in locked CD cupboard until required.
- When ready to recommence carefully check prescription, syringe label, verify correct patient/correct infusion and infusion is running to prescribed time. **Note:** stopping the infusion will delay the end time of infusion (which should be over 24 hours)
- Reconnect syringe pump/line to cannula maintaining asepsis
- Press and hold **ON** button.
- The screen will request confirmation of syringe size/brand • Press **YES** to confirm.
- Screen will display **YES** resume programme, NO new infusion.
- Press **YES** to resume programme – screen will display remaining volume/duration/rate of infusion. Ensure all information is per prescription.

| **CAUTION** |
| --- |
| If 'NO new infusion' is pressed this will reset the remaining infusion to deliver over 24 hrs at a different rate. |

- Press **YES** to confirm.
- Unclamp line.
- Press **YES** to start infusion.
- Document time infusion commenced.
  **Note:** This will extend time of infusion by however long the infusion was stopped for.
- Press and hold **INFO** key to lock keypad.
- Replace lock box.

### 9.4 Replenishing of an Infusion (new syringe when re-siting of Saf-T-Intima line is not required)

- Prepare new syringe and contents as per policy.
- Press **STOP**
- Press and hold **INFO** key to deactivate keypad lock.
- Switch pump **OFF**
- Clamp Saf-T-Intima cannula
- Both nurses (where appropriate) to verify patient identity and confirm prescription/label/monitoring form
- Remove old syringe.
- Switch pump on
- As section 9.1 and 9.2 – preloading/loading of syringe
- If there is a significant change in medication prescribed, consider changing the giving set.

**NOTE:** Do not connect syringe to patient until secured in syringe pump and line clamp on. Only release clamp when ready to commence infusion.

### 9.5 Stopping the Infusion and removing the syringe pump /Unused medication

If the syringe pump is to be discontinued, this must be done by appropriately trained staff.

- Press **STOP** – unlock keypad and turn pump **OFF**
- Clamp line – disconnect pump.
- Remove cannula if appropriate or insert new cannula.

Any unused medication must be disposed of as per policy.

**Note:** In the event of stopping an infusion with some medication remaining, and there is a variance between visual volume and the computer display of volume remaining, the computer display figure should be the one used for recording wastage in the controlled drug register/drug stock sheet and on the syringe pump monitoring chart. Professional judgement must be exercised if there is a significant difference between the two figures (i.e more than the hourly rate) and the cause investigated/incident form completed and the Pump returned to clinical engineering if the pump delivery appears faulty.

The reason for discontinuation of the pump must also be documented. Review the overall prescription and check it has infused as prescribed. Any discrepancies must be investigated and actioned. Significant anomalies must be reported via an incident form and incident reporting procedure.

Clean syringe pump, remove the battery and return to store on completion of infusion. If any concerns regarding the efficacy of the syringe pump it must be isolated and returned to ULHT Clinical Engineering / LCHS Medical Devices (depending on device ownership).

## 9.6 Changing a battery during an infusion

- Press **STOP** and apply clamp.
- Insert new battery.
- Restart pump.
- Reconfirm syringe size and brand.
- Press **YES** to resume.
- Reconfirm volume and duration and release clamp.
- Press **YES** to recommence infusion.
- Lock Keypad.

## 9.7 In the Event of a Patient's Death

As in section 9.5 above.

If there are any doubts about the circumstances of the patient's death DO NOT remove the pump, seek advice from doctor / coroner and if advised quarantine syringe pump securely, complete with the syringe and line. Cap and leave cannula in situ.
Document all relevant details. Inform line manager immediately. Complete any organisational escalation process and relevant documentation.
If the syringe pump is no longer required, destroy what is left in syringe driver if appropriate ( in line with organisation policy for disposal of controlled drugs) clean pump, remove the battery and return to stock. Store carefully until next required.

## 9.8 Cleaning the Syringe pump

**"Manufacturer Recommended Cleaning"** (**MRC**) protocol is to preserve pump performance.
To clean the pump, wipe the external pump surface by exclusively using disposable wipes impregnated with isopropyl alcohol (IPA) 70%, to minimize pump exposure to excessive quantities of liquids.
Isopropyl alcohol is volatile and leaves no residue upon evaporation, therefore surfaces are left dry quickly after wiping.
The intent of the MRC protocol is to remove particles and chemical residue that could accumulate over time on pump surface resulting from normal use and from the "disinfection protocol / regime" developed by users at point of use. It is highly recommended to apply on pump the MRC protocol on a regular basis and after each disinfection sequence as a preventive measure to maintain pump.
performance. It is also recommended to clean the pump using the MRC protocol between patient use.
When the pump is visibly soiled this soiling must be removed first using a suitable product. LCHS advocate the use of a single use cloth wetted with neutral detergent solution that has been well rung out – followed by the alcohol-based wipe.

**Note:** Preventive maintenance also helps to maintain pump performance over time. This should be performed as recommended in the maintenance section within this DFU.
_ **Warning:** Turn off the pump.
_ **Warning:** When fluid ingress is suspected, stop using the pump and request pump verification through maintenance to identify potential need of corrections.
_ **Caution: Immersing the pump into liquid could cause damage to components. Do not soak or immerse any part of the pump or the pump charger in water or any other solution.**
_ **Caution:** If other chemical cleaning agents are used for "disinfection protocol / regime".
Ensure to follow the Manufacturer recommended cleaning to preserve pump performance, post completion of the "disinfection protocol / regime".
_ **Caution:** Do not spray or rinse cleaning solutions directly on pump surfaces or in potential liquid retention areas or open ports such as electrical connections.
_ **Caution:** Avoid using chemicals that can damage the surfaces of the instrument (e.g. chlorinated solvents).
_ **Caution:** When using cleaning solutions containing chemicals (such as corrosive agents), do not use concentrated solutions and do not expose surfaces above the recommended dwell time. After application, rinse surfaces with IPA disposable wipes to eliminate chemical residue.
_ **Caution:** Do not steam, autoclave, EtO sterilize (Ethylene oxide), immerse the instrument or charger in any type of fluids, or allow fluids to enter the instrument case.
"

**(MHRA, July 2019)**

**Lockbox cleaning**
CME Ltd. recommends the use of alcohol wipes to decontaminate the lockbox. Other products may be used but users should be aware that extended usage could result in the lock box becoming brittle and susceptible to damage.

## 9.9 If the infusion line snaps

If the infusion line snaps during an infusion the infusion will have to be completely renewed (repriming and continuing with the same infusion will reduce the volume and affect prescribed delivery rate and end time of infusion).

## 9.10 Event Log

The McKinley T34 provides an event log which shows a record of pump status (volume infused, rate etc.).
Press I**NFO** key and scroll to event log.
Press **YES** to select.
The screen will now show the most current event alarm date, time etc. Use **UP/DOWN** keys to scroll through events to find events of interest.
Press **INFO** on any chosen event displays further data regarding the event.

A full history of events can be downloaded by ULHT Clinical Engineering / LCHS Medical Devices (depending on device ownership) for reference if there is an area of concern.

# 10 PUMP ALARMS

When the Pump detects a problem four things happen:

1. The infusion stops (unless the event is an ALERT# see table below)
2. The LED indicator turns red
3. An audible alarm is activated (this will continue until either the YES key is pressed to mute, or the problem is rectified).
4. A message appears on the display screen indicating the cause

The following table indicates appropriate actions to be taken:

| Alarm | Possible Cause | Action |
|---|---|---|
| Occlusion or Syringe Empty | Patient access device blocked,<br>kinked, clamped, or occluded<br><br>Actuator has reached minimum travel position | Flush/replace access device, release the clamp or clear the occlusion then resume the infusion<br><br>End of program, switch Pump off |
| Syringe Displaced | Syringe has been removed or displaced (one or more of the syringe detection sensors is not detecting | Check screen message for assistance. Check the syringe placement and re-seat as necessary |
| Pump paused too long | Pump has been left in STOP mode (on hold) for 2 minutes | Start infusion, continue pause or switch off |
| Near End # | 15 minutes from end of infusion | Prepare to change syringe or switch off |
| End Program/syringe | Infusion complete | Close down or start new infusion (Pump will default to keep vein open (KVO) if set) |
| Low Battery # | Battery is almost depleted (30 minutes left) | Prepare to change battery |

| | | |
|---|---|---|
| | | |
| | | |
| End Battery | Battery is depleted | Change battery |
| System error. Press and hold INFO for details | System error | Remove driver from use and return to ULHT Clinical Engineering / LCHS Medical Devices (depending on device ownership). Document error number and description of the problem |

# 11 MONITORING DURING THE INFUSION

It is recommended best practice, when a syringe pump is set-up, reloaded or re-sited to observe the syringe pump during the first 15 minutes to ensure it is functioning correctly. Further monitoring checks should be carried out:

- A minimum of 4 hourly within in-patient settings (Appendix C)
- At each visit by a nurse in the community setting – the frequency of this depends on factors such as other nursing needs of the patient, the willingness or ability of the patient/carer to assist in monitoring.

Press **INFO** key once to check infusion summary on the screen which will display:

- Volume to be infused.
- Volume infused.

After a few seconds the display will return to the main infusion screen which will indicate:

- Display screen states that syringe brand is same as syringe used.
- Time remaining
- Rate ml/hr
- Chevrons will flash to show Pump delivery.
- Green light will flash.

Comprehensive records must be kept in patients notes of:

- Date and time of administration
- **For the BD BodyGuard** Record the date and time of the start of the infusion, but do not use the date and time given on the syringe pump itself (as it is likely that this is set incorrectly and can only be reset by a trained technician).
- Site of administration
- Name, dosage, and volume of medication
- Signature of clinician

- Either device identification number or serial number of the pump/device (Clothier report 1994)

The following monitoring checks should be carried out and documented, as follows:

- record the time the syringe pump is checked.
- record the location of the infusion site when the syringe pump is set up and when the infusion line is changed.
- check the infusion site for:
    - redness
    - swelling
    - discomfort/pain
    - leakage of fluid
- check the medication is controlling the patient's symptoms.
- check for signs of opiate toxicity/intolerance if opioid in the syringe pump Further information available at Palliative Care Matters (pallcare.info)
- check the solution in the syringe and the infusion line for cloudiness, presence of large air bubbles (small ones not significant), precipitation or colour change.
- record the flow rate and check it is correct.
- record the volume of solution to be infused and the volume infused and check from this information that the syringe pump is delivering the medication at the desired rate (compare the fluid remaining in the syringe with the pump reading/display)
- Check the battery light is flashing. There is no need to record the battery percentage as this has been carried out already as part of the daily set up.
- When the infusion site is changed, record the reason in the notes.
- At each check inspect the SC infusion line to ensure that it is securely attached to both the syringe and the patient and that it is not leaking, kinked or trapped. If there are any problems, then they must be documented, and appropriate action taken.

The individual carrying out the monitoring checks should document and sign (on monitoring record or document on system 1). If any checks are not carried out e.g. site check to prevent disturbing the patient whilst asleep, record this and the reason on the monitoring chart. **If any checks indicate a problem e.g. the infusion is not running at the expected rate, the appropriate action must be taken and documented in the notes.**

**Completion of the infusion**

The end of an infusion either planned or early replenishment e.g. due to a prescription change, must be documented and the monitoring chart fully completed and any controlled drugs disposed of as per organisational policy regarding correct disposal of controlled drugs.

The chart must be reviewed in the relation to the 24-hour period to ensure the pump has run to the prescribed time and within parameters. Any discrepancies must be

investigated and actioned. Professional judgement must be exercised and if discrepancy significant an incident form must be completed and reported as per policy.

# 12 TROUBLESHOOTING

See section 10 Pump Alarms.

**IF FAST** – more than 1 hour (displayed rate) ahead of expected time (there is no tolerance to a syringe pump running fast):

- Inform Doctor, review patients clinical condition, document.
- Check the rate setting is correct.
- Check the correct syringe brand or size has been selected.
- Change the pump.
- Complete an incident form.
  Send the faulty driver to ULHT Clinical Engineering / LCHS Medical Devices (depending on device ownership), include a copy of the incident form and syringe driver log and any other relevant information

**IF SLOW** – more than 1 hour behind expected time:

- Inform Doctor, review patient's condition, document.
- Check with patient/family if there is any relevant information regarding reason for delay.
- Check rate setting is correct.
- Check the syringe pump light is GREEN and flashing.
- Check battery level.
- Check the correct syringe size and brand has been selected.
- Check the syringe is correctly inserted into the syringe pump.
- Check whether the pump has been stopped/started for any reason e.g. showering or occlusion
- Check contents of syringe at line for indications or precipitation/cloudiness/kinking of tubing/clamp left on.
- Check cannula site for redness/soreness/leakage/change if necessary.
- If pump significantly slow, more than 1 hour, send to ULHT Clinical Engineering / LCHS Medical Devices (depending on device ownership)

**Residual Volume**

There may be an occasion where there is a small residual volume remaining at the end of the infusion. This may be due to site resistance, potentially due to oedema/pressure/reduced absorption, however, the pressure may not be enough to trigger the occlusion alarm.
Residual volume may also result from initial variance when the pump was commenced (see Section 9.2).
This is acceptable if the volume equates to approximately the hourly rate (e.g. approximately 1 hour slow).

In this instance the site should be checked for efficacy. If any doubts about potency/absorption the cannula should be re-sited.
The subsequent infusion must be monitored closely for accuracy of infusion time/delivery. If it continues to run slow the pump should be replaced and sent for servicing with full details of the problem.

If the residual volume is more than the hourly rate (more than 1 hour slow) the pump should be replaced and sent with full details of the problem for servicing.

Any residual volume should be disposed of as per policy and clearly as "residual volume not infused". All documentation should be signed/dated (see Section 9.6 Stopping an infusion and unused medication).

# 13 REFERENCES


Clothier, C (1994) *The Allitt Inquiry*. HMSO: London.

CME Medical (2019) *T34 Ambulatory Syringe Pump Operator Manual*

CME Medical (2021) *BD BodyGuard T Syringe Pump. Directions for use.*

Dickman A, Schneider J. (2011) *The Syringe Pump. 3rd ed.* Oxford University Press.

Dickman A, Schneider J. (2016) *The Syringe Pump: continuous subcutaneous infusions in palliative care, 4th ed.* Oxford University Press.

IEC International Standard Ref: IEC60601-2-24 (1998-02) *Particular requirements for the safety of infusion pumps and controllers.*

Medicines Act 1986. HMSO: London

Mental Capacity Act (2005) DOH: London.

MHRA (2013) *Infusion Systems.* Medicines and Healthcare products Regulatory Agency: London

MHRA (2016) Medical Devices Alert
Medicines and Healthcare products Regulatory Agency: London

MHRA (2021) *Managing Medical Devices: Guidance for healthcare and social services organisations.* Medicines and healthcare products Regulatory Agency: London.

MHRA DB2010(01) Device Bulletin. *Reporting Adverse Incidents and Disseminating Medical Device Alerts.*

MRHA (2018) MDA/2018/010, https://www.cas.mhra.gov.uk/ViewandAcknowledgment/ViewAttachment.aspx?Attachment_id=102973

MRHA (2019) MDA/2019/030 accessed online at https://www.gov.uk/drug-device-alerts/all-models-of-t34-ambulatory-syringe-pumpsupdated-cleaning-advice-and-maintenance-requirements-due-to-the-risk-of-fluidingress-mda-2019-030

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

NICE (2015) *Care of dying adults in the last days of life (NG31)* https://www.nice.org.uk/guidance/ng31/chapter/Recommendations#anticipatory-prescribing

NMC (2019) *The Code: Professionals Standards of Practice and Behaviour for Nurses and Midwives,* Nursing and Midwifery Council: London.

NPSA (December 2010) *Safer Ambulatory Syringe Pumps*. National Patient Safety Agency Ref: NPSA/2010/RRR019 – now archived and stored on NHS Improvement website

PANG (2016) Palliative Adult Network Guidelines, 3rd edition. Tricord.

P_CIG_18_Policy_for_Prescribing_Supply_Storage_and_Disposal_of_Controlled_Drugs_v5.1.pdf (lincolnshirecommunityhealthservices.nhs.uk)

Twycross et al (2017) *Palliative Care Formulary,* 6th Edition, Radcliffe Medical Press.

United Lincolnshire Hospitals NHS Trust (2011) *Policy for Medicines Management*.

WHO (2016) Definition of Palliative Care http://www.who.int/cancer/palliative/definition/en/

# Appendices

## Appendix A McKinley T34 Syringe Pump Leaflet

## Aim of the leaflet

This leaflet aims to tell you what a McKinley syringe driver is, why you are using it, how it works and how to care for it. It also provides advice for people using a syringe driver at home.

## What is a syringe driver?

A syringe driver is a small battery-powered pump which delivers a continuous flow of medication from a syringe to just beneath the surface of your skin, via a thin tube and small needle. It is small enough for you to carry in a pouch or pocket.

## Why do I need a syringe driver?

Syringe drivers are used for the following reasons:

- when you find it difficult or impossible to take medication by mouth, for example, because it is hard to swallow
- when you are not successfully absorbing medication taken by mouth, for example, because you are being sick

A syringe driver reduces the need for repeated injections and gives a constant level of medication. We will talk to you about why it might be helpful for you to have a syringe drivers, and about the medications we would put in it. Then you can decide whether you think a syringe driver would be suitable for you.

## How does it work?

A nurse or doctor inserts a small needle less cannula just under the skin. A thin tube connects the needle to the syringe, and the syringe attaches to the syringe driver. The driver has a battery-driven motor. The motor slowly pushes a plunger into the syringe barrel and so pushes the contents of the syringe into the line and through the needle. You should not feel this at the needle site, as only a tiny amount of liquid is delivered each time the plunger moves.

A green flashing light on the front of the syringe driver tells you that the driver is working and the medication is being delivered. The nurses will re-fill the syringe when it is due each day and will check that the machine is functioning properly. They will use medications according to your doctor's prescription. The doctor will finalise the prescription after talking with you and making sure that the medication is working. If you develop symptoms, the doctor will adjust your medication.
You can put the syringe driver in a pouch that you can carry over your shoulder or attach around your waist, or you can put it in a

pyjama pocket or shirt pocket.

The needle is usually positioned on your upper arm, upper thigh, upper chest or tummy, but occasionally the upper back is used. It is held in place by a clear dressing which keeps the needle site clean and dry. Once it is inserted, you should not feel any discomfort from the site, and often the needle can stay in place for many days.

## How do I look after my syringe driver?

There are three key things to remember:

1. Do **not** get it wet as it is not waterproof.
2. Be careful not to drop the syringe driver
3. Keep it out of direct sunlight and away from heat.

There is a small risk of mobile phones interfering with the syringe driver. To reduce this risk, mobile phones should not be used within one metre of the driver. It is best to switch off your mobile phone when not in use, or kept it at least one metre away from the driver. If you need to use the phone, hold it in the hand opposite the side where the driver is situated.

**What if the alarm sounds?**

Syringe drivers normally work well but occasionally problems do occur. An alarm will sound if a problem is detected. If you are in hospital or in the hospice, the nurse will check the driver regularly.

The pump has an alarm which will sound if the syringe driver detects a problem or if the battery is low.

It is normal for the alarm to sound 15 minutes before it is due to end.

**Do not panic. If the alarm is sounding, you should contact the nurse for advice unless you are expecting the nurse to visit within the next 15 minutes to change the syringe. Do not attempt to change the battery yourself.**

**What else should I look out for?**

You may notice that:

- the needle site has become red, swollen or sore, or is

leaking/wet
- the driver appears to be running too fast or too slowly

If any of the above occur, or if your symptoms are not controlled, please contact the team on one of the phone numbers below, or in an inpatient setting the team looking after you.

**How will it affect my life?**
As the syringe driver is portable, you can continue normal activities. However, the syringe driver is **not waterproof**, so you should take care when bathing or showering to keep the syringe driver dry. The cannula site should also be kept dry and is covered with a waterproof dressing. The medication in the syringe is usually renewed every 24 hours by a nurse. If you go on holiday, we can arrange for a nurse to call at your holiday destination (in the UK)..

**Contact details if you have any concems**

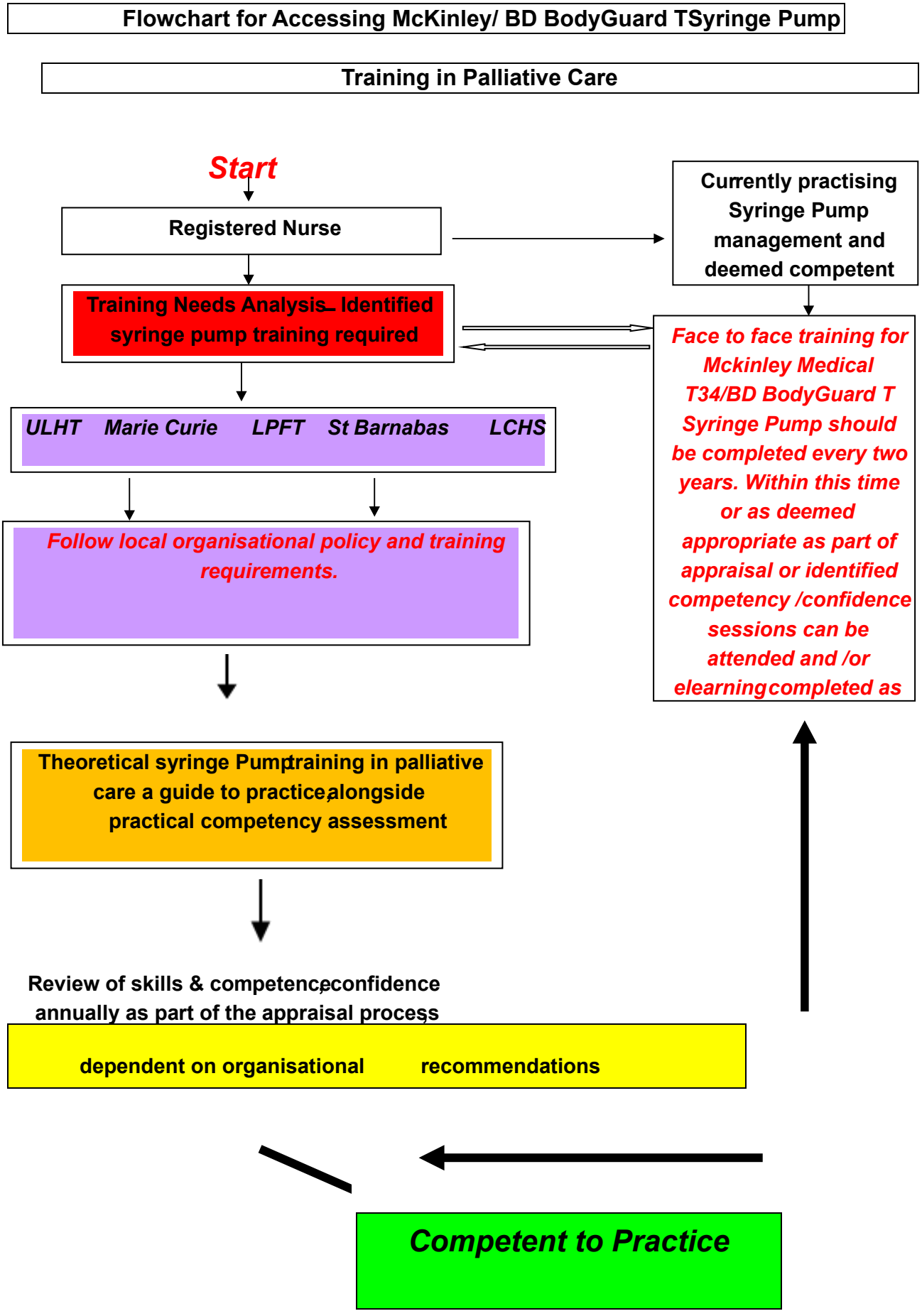
Name _____

Telephone: _____

Name_____

Telephone: _____

## Appendix B Flowchart



Appendix C Continuous sub-cutaneous infusion Form

| **CONTINUOUS SUB-CUTANEOUS INFUSION**<br>*Via* **syringe Pump for use in Community Hospital Wards only**<br>**Patient has consented to syringe Pump use** ☐ | **Syringe Pump Asset No:**<br><br>**Service due date:** | **NAME:**<br><br>**DOB:**<br><br>**NHS No:** |
|---|---|---|

| **Nurse signatures initiating syringe Pump** | **24 HOUR FUNCTION CHECKS** |
|---|---|
| **1** | |
| **2** | |

| **Set up Date / renewal** | **Syringe size 30ml / 22ml / 20ml / 17ml** *circle* | **Time** | **Rate ml/hr** | **Battery % <15 renew** | **Saf-T-intima Site + phlebitis scale** | **CSCI time remaining** | **Function lock +box on** *tick* | **Comments / Actions taken** *new line, re-site Saf-T-intima,* | **Signature / initial of nurses** |
|---|---|---|---|---|---|---|---|---|---|
| **Name of Medication and Diluent used in syringe pump** | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| **Reason for discontinuing / discarding.**<br><br>***Post death*** *document amount of prescription in mls discarded and initial.*<br>*New prescription, patient request, condition improved.* | **Phlebitis Scale: 0** no signs or symptoms + comfortable<br>1 erythema at access site + / - pain<br>2 pain & erythema at access site + / - oedema |
|---|---|

## Review of document

This document should be reviewed in 2 year's time.

Lincolnshire Community Health Services NHS Trust
United Lincolnshire Hospitals NHS Trust
Lincolnshire Partnership NHS Foundation Trust

# Appendix D Equality and Health Inequality Impact Assessment Tool

This tool has been developed by the Equality, Diversity and Inclusion Leads for use in the NHS Provider organisations in Lincolnshire. The tool is designed to ensure due regard is demonstrated to the Equality Act 2010, the Public Sector Equality Duty and potential health inequalities are also identified and addressed (as outlined in the Health and Social Care Act). Please complete all sections below. Instructions are in **bold** Email for all correspondence: email to lhnt.edifirst@nhs.net

## Service or Workforce Activity Details

| | |
|---|---|
| Description of activity | This policy covers the activity of setting up and monitoring continuous sub-cutaneous infusions in adult palliative care, using the McKinley T34 or BD BodyGuard Syringe Pump. |
| Type of change | Includes addition of new model of syringe Pump but not a new policy. |
| Form completed by | Rosie Royce<br>Macmillan Clinical Nurse Specialist |
| Date decision discussed & agreed | **May 2024** |

| | |
|---|---|
| Who is this likely to affect? | Service users X□ Staff X□ Wider Community □<br><br>If you have ticked one or more of the above, please detail in section B1, in what manner you believe they will be affected. |

## Equality Impact Assessment

| | |
|---|---|
| How does this activity / decision impact on protected or vulnerable groups? (e. g. their ability to access services / employment and understand any changes?)<br><br>Please ensure you capture expected positive and negative impacts. | This policy relates to the use of medical equipment – no impact on protected or vulnerable groups envisaged. |
| What data has been/ do you need to consider as part of this assessment? What is this showing/ telling you? | None relevant to this policy |

## Risks and Mitigations

| | |
|---|---|
| What actions can be taken to reduce / mitigate any negative impacts? (If none, please state.) | None needed – negative impact on protected or vulnerable groups not envisaged |

| | |
|---|---|
| What data / information do you have to monitor the impact of the decision? | None relevant |

## Decision/Accountable Persons

| | |
|---|---|
| Endorsement to proceed? | **Yes** |
| Any further actions required? | **N/A** |
| Name & job title accountable decision makers | Lincolnshire PEOL delivery group |
| Date of decision | **2/7/24** |

| | |
|---|---|
| Date for review | **August 2026** |

## Purpose of the Equality and Health Inequality Assessment tool

- The NHS in Lincolnshire has a legal duty under the Equality Act 2010, Public Sector Equality Duty 2011 and the Health and Social Care Act 2012 to demonstrate due regard in all decision making, for example, when making changes to services or workforce practices, to ensure access to services and workforce opportunities are equitable and to avoid harm and eliminate discrimination for each of the protected characteristics and other groups at risk of inequality.
- Within the guidance toolkit there are also some examples of decisions this tool has been used on in other organisations and the impacts they have identified.

## Checklist

- Is the purpose of the policy change/decision clearly set out?
- Have those affected by the policy/decision been involved?
- Have potential positive and negative impacts been identified?
- Are there plans to alleviate any negative impact?
- Are there plans to monitor the actual impact of the proposal