Policy for the Use of the Ambulatory T34 Syringe Driver in Adults Receiving Palliative and/or End of Life Care in the University Hospitals of Leicester NHS Trust

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REVIEW DATES AND DETAILS OF CHANGES MADE DURING THE REVIEW

This version represents a substantial rewrite of the previous policy ‘Policy for the Use of the T34 Ambulatory Syringe Pump in Adult Patients in Palliative Care for Primary and Secondary Care in Leicester, Leicestershire and Rutland’ (E1/2013

The policy is now specific to the University Hospitals of Leicester NHS Trust to ensure that it is clear, relevant and accountable within a hospital setting.

It includes updates from Medical Devices Alerts MDA/2016/002 and MDA/2018/010

Changes are listed in appendix 1

KEY WORDS

Syringe Driver, Syringe pump, T34, Subcutaneous infusion, Palliative Care, End of life Care
1 INTRODUCTION AND OVERVIEW

1.1 This document sets out the University Hospitals of Leicester (UHL) NHS Trusts Policy for the Use of the Ambulatory T34 Syringe Driver in Adults Receiving Palliative and/or End of Life Care in the University Hospitals of Leicester NHS Trust.

1.2 A phased introduction of T34 Syringe Drivers commenced in 2011 in response to the alert, ‘Safer Ambulatory Syringe Drivers’ (NSPA/2010/RR019). The T34 replaced all Graseby MS26 and MS16A Syringe Drivers.

1.3 The T34 Syringe Driver is the only delivery device that should be used to deliver continuous subcutaneous infusions of medications to adult patients where the medications are part of their palliative and/ or end of life care.

2 POLICY SCOPE—WHO THE POLICY APPLIES TO AND ANY SPECIFIC EXCLUSIONS

2.1 This policy applies to all members of staff working within the UHL who are involved in adult patient care which requires the use of a T34 syringe driver for palliative and/or end of life care medication. This includes all staff who request, track, use, maintain or deliver T34 syringe drivers within the University Hospitals of Leicester NHS Trust.

2.2 This policy only applies to adult patients receiving medication as part of their palliative or end of life care.

2.3 This policy does not apply to children or young people. The paediatric team should be contacted directly for advice about a child or young person under 18.

3 DEFINITIONS AND ABBREVIATIONS

3.1 **BNF** is the British National Formulary, which is the UK pharmaceutical reference book.

3.2 **DNACPR** means ‘Do Not Attempt Cardio-Pulmonary Resuscitation.’ In this situation, no attempt is made to try to restart the heart or breathing when somebody dies.

3.3 **End of Life** is defined by the General Medical Council and Department of Health (2009) as people who are likely to die in the next 12 months. This includes, but is not exclusive to, those people whose death is imminent.

3.4 **LOROS** is the local hospice which serves Leicester, Leicestershire and Rutland.

3.5 **LPT** means Leicester Partnership NHS Trust, the local community NHS trust.

3.6 **Palliative** refers to a treatment, intervention or approach which is aimed at support and comfort rather than cure.

3.7 **PRN** is a Latin term that stands for ‘pro re nata’ which means ‘as the thing is needed.’ PRN medication is sometimes referred to as ‘anticipatory medication.’ There can be important differences between medication which is prescribed regularly and those that are prescribed prn. It is therefore important to be clear whether a medication is being prescribed and/ or administered regularly or as needed.

3.8 **SC** means subcutaneous e.g. SC infusion means subcutaneous infusion.

3.9 **UHL** stands for University Hospitals of Leicester NHS Trust.
4 Roles – Who Does What

4.1 Board Director Responsibility
The Chief Nurse has executive responsibility for this policy and is the person charged with notifying the Trust Board of any developments in this area, including those reported to the End of Life and Palliative Care Committee.

4.2 Non-Executive Director
The Non-Executive Director with responsibility for End of Life Care within UHL is responsible for raising any issues or concerns at Trust Board which they do not feel are being addressed by the Board Director with responsibility.

4.3 End of Life and Palliative Care Committee
The chair of the End of Life and Palliative Care Committee, along with members of the Committee and the End of Life Care Lead Clinician, will have responsibility for:
   a) Monitoring compliance with this policy.
   b) Review of this policy, including identifying an appropriate reviewer(s)
   c) Consideration of education needs
   d) Liaising with clinical staff including the Specialist Palliative Care Team, to develop an action plan if the number of available T34 syringe drivers is not sufficient for actual or projected demand.

4.4 Clinical Management Group (CMG) Directors and Heads of Nursing are responsible for:
   a) Making sure that all staff in their CMG are made aware of the policy and procedure how to access at T34 syringe driver
   b) Making sure that staff groups and individuals are given appropriate training to prescribe, set up, track and return a T34 syringe driver
   c) Managing the effectiveness of this policy through a robust system of reporting, investigating and recording incidents and report any concerns / issues to the CMG Quality and Safety Boards.
   d) Ensuring process are in place to undertake audits of compliance, results reviewed and actions taken to address any areas of non-compliance

4.5 Prescribers
   a) Prescribers are responsible for undertaking a relevant clinical assessment to help inform their decision to prescribe a continuous subcutaneous infusion to manage the symptoms of an adult patient receiving palliative and/or end of life care via a T34 syringe driver.
   b) The prescriber should prescribe separate subcutaneous injections for breakthrough symptoms which can be given if needed (prn).
c) The authorised prescriber should be aware of the usual indications for a T34 syringe driver (appendix) that regular use of breakthrough medication indicates a need for reassessment of patient.

d) Following an assessment and recommendation of a T34 syringe driver by an appropriately skilled non-prescriber, such as a Palliative Care Nurse Specialist, a prescriber should make an assessment and promptly prescribe an appropriate T34 syringe driver.

e) If the prescriber is in doubt about the appropriateness of the recommendation, the situation and concern should be discussed directly with the Specialist Palliative Care Team (UHL 9-5pm, via LOROS 5pm-9am). There is a Consultant in Palliative Medicine on call if senior medical advice is required. The contact details for the Palliative Care Team and LOROS are available on the Palliative Care Page on INSITE.

f) A list of commonly used drugs with use with adult patients can be found on the LOROS website or published infusion resources. If unsure contact the Palliative Care Team or Pharmacy.

g) A T34 syringe driver must not be prescribed on an anticipatory ‘as needed’ basis.

4.6 Healthcare Professional Staff involved in setting up and using a T34 syringe driver:

a) Staff must request, use and return a T34 syringe driver in accordance with this policy (see Appendices 2-7)

b) Staff must attend training and be assessed as a safe user before setting up a T34 syringe driver (appendix 8)

c) Staff should notify their line manager of any training needs and for undertaking relevant training

d) The healthcare professionals should communicate with the patient, those important to them and the team about the presence and purpose of a T34 syringe driver. If they are asked for information and are unsure, the query must be passed on to a member of the clinical team to respond e.g. staff nurse, ward manager, specialist palliative care team.

4.7 Specialist Palliative Care Team

a) Give advice on commonly used drugs in palliative and end of life care for adult patients, ensuring this advice is documented. The Palliative Care page on INSITE should be used to identify appropriate contact details for the team at the relevant time of day/day of the week.

b) Support healthcare professionals to answer questions or concerns, patients and those important to them have regarding the presence and purpose of a T34 syringe driver

c) Advise healthcare professionals on the correct device (T34 syringe driver) to be used to deliver subcutaneous infusions to patients for the use of palliative or end of life care medication

d) When persistent problems are identified with the infusion site, advise health care professionals on the appropriate management
e) Specialist Palliative Care Team prescribers should prescribe a T34 syringe driver following assessment of the patient and identification of need for a T34 syringe driver

f) Specialist Palliative Care Team non-prescribers who recommend a syringe driver must alert an authorised prescriber to the need for a prompt assessment and prescription of an appropriate syringe driver

g) Respond to requests from the Palliative/End of Life Care Committee to provide clinical input into an action plan if the number of syringe drivers is not sufficient to meet actual or projected demand

4.8 Medical Physics Staff will be responsible for:

a) following the process for obtaining and returning a T34 syringe driver (Appendix 4)

b) ensuring that the blue box is filled with the relevant equipment prior to being sent for use with a patient

c) keeping an accurate log of available T34 syringe drivers and the locations of T34 syringe drivers that have been taken to a ward area (see appendix 4)

• A report will be submitted to the End of Life and Palliative Care Committee as set out in the policy monitoring schedule. This report will outline the number of available T34 syringe drivers and whether any T34 syringe drivers have been lost.

d) reporting to the Chair of the End of Life and Palliative Care Committee if there is any concern that the number of available T34 syringe drivers is not sufficient for actual or projected demand T34 syringe drivers. The Specialist Palliative Care Team should also be notified.

e) ensuring that the T34 syringe drivers are serviced and maintained in accordance with the service schedule. This includes the specific requirements to check the battery connections in Medical Devices Alert MDA/2018/010.

f) The Medical Physics Education team is currently responsible for education and training about T34 syringe drivers. Should this change or they encounter any difficulties with the delivery of education or records of education, this must be reported to the End of Life and Palliative Care Committee.

4.9 Portering Staff

Will follow assist with the delivery and return of T34 syringe drivers supporting support ward staff and the Medical Equipment Library (appendix 4).
5. POLICY IMPLEMENTATION AND ASSOCIATED DOCUMENTS

5.1 Any clinical area using a T34 syringe drivers must have staff who are trained and competent to use or request T34 syringe drivers in accordance with this policy prior to implementation. (see section 6 for training)

5.2 A video has been developed and is available on INSite to serve as a refresher for staff training following face-face training and assessment as a safe user.

5.3 Clinical areas that use the T34 syringe drivers must have staff who have received training on the Saf-T cannula introduced into the Trust in November 2018.

5.4 A T34 syringe driver is the only delivery device that may be used to deliver a subcutaneous infusion for palliative and/or end of life care medication.

5.5 Staff who set up a T34 syringe driver must be trained to do so and assessed as a safe user in accordance with Appendix 8, T34 Syringe Driver Training and Safe User Checklist

5.6 The updated T34 syringe driver checklist (appendix 6) and patient and family information leaflet (appendix 5) must be used.

6 EDUCATION AND TRAINING REQUIREMENTS

6.1 Ward Staff must have initial face to face training on T34 syringe drivers followed by an assessment. Top up training will be available online as a video and face-face if requested.

6.2 Staff who train and assess staff as safe users of the T34 syringe driver must
   • have attended and completed the CME Medical T34 syringe driver training session or an in-house session based on the CME training
   • be a registered healthcare professional who is competent in this skill
   • Have a sound knowledge of relevant policies and procedures

6.4 A record of staff who are safe users of the T34 syringe driver will be kept and maintained by the team leading education delivery

7 PROCESS FOR MONITORING COMPLIANCE

This policy will be monitored using the following indicators in the table below:

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Lead</th>
<th>Tool</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of only T34 syringe drivers to deliver subcutaneous infusions of palliative or end of life care medication</td>
<td>Palliative and End of Life Care Lead Nurse,</td>
<td>Spot audit to ensure that no other delivery device is being use</td>
<td>3 monthly for first 18 months, ensuring all CMGs have been monitored in 1st 9 months.</td>
<td>End of Life and Palliative Care Committee</td>
</tr>
<tr>
<td>Monitoring of T34 syringe driver infusions</td>
<td>Palliative and End of Life Care Lead Nurse</td>
<td>Spot audit to check that the UHL monitoring form is being used and that the relevant sections are completed</td>
<td>6 monthly for first year</td>
<td>End of Life and Palliative Care Committee</td>
</tr>
</tbody>
</table>
8 EQUALITY IMPACT ASSESSMENT

8.1 The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.

8.2 As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

9 SUPPORTING REFERENCES, EVIDENCE BASE AND RELATED POLICIES


Leadership Alliance for The Care of Dying People. (2014) Priorities of Care for the Dying Person: Duties and Responsibilities of Health and Care Staff. Leadership Alliance
McKinley RK, Strand J, Gray T et al. (2008) Development of a tool to support holistic generic assessment of clinical procedural skills. Medical Education 42 619-627


UHL Sharps Management Policy B8/2013

UHL Care of adults in the last days of life guidance B1/2014

UHL IV (intravenous policy) B25/2010

UHL Policy & procedures for the management of Controlled drugs (CDs) on wards, departments and theatres B16/2009

UHL Policy for Consent to examination or treatment A16/2002

10 PROCESS FOR VERSION CONTROL, DOCUMENT ARCHIVING AND REVIEW

10.1 This policy will be reviewed every 3 years. A lead reviewer for the policy will be appointed by the End of Life and Palliative Care Committee.

10.2 The updated version of the Policy will then be uploaded and available through INsite Documents and the Trust’s externally-accessible Freedom of Information publication scheme. The previous combined setting T34 syringe driver policy E1/2013 will be archived through the Trusts PAGL system.
A1.1 This policy is an extensive rewrite to take into account specific needs in the hospital setting including:

1) Monitoring of availability and location of the T34 syringe driver
2) Returns process—within the hospital and for discharges
3) Education to UHL staff, including a specific checklist for training which will be used to check the staff are a ‘safe user’ of the T34 syringe driver
4) Choice of device for delivering a subcutaneous infusion of medication for palliative and or end of life care should only be a T34 syringe driver
5) As needed (PRN) T34 syringe drivers should not be prescribed

A1.2 Appendix 3 has been updated to include recommendations about checking battery connectors and using a sunsafe protective pouch in light of the Medical Devices Alerts MDA/2016/002 and MDA/2018/010.

A1.3 The clinical content has been reformatted to enable easier processing of the information in ‘steps’. The content has been retained in as similar a format as possible, so that this can be minimally adapted across other settings should they wish (and therefore maintain as much relevant commonality as is possible within different healthcare settings).

A1.4 Appendices specific to other organisations, such as the different procedure to set up a T34 syringe driver in LOROS, have been removed. More details of changes can be seen in Appendix 1.

A1.5 The Duties and Monitoring have been fully revised and are specific to UHL

A1.6 The section ‘Drugs commonly used in a Syringe Driver’ has been removed so that there are fewer sources of drug information. The revised policy signposts to LOROS website and published pharmaceutical information. Guidance for drugs commonly used in the last few days of life can be found in the UHL Care of Adults in the last days of life guidance.

A1.7 The monitoring form has been revised to include specific guidance about monitoring frequency in hospital setting (4hourly).

A1.8 The policy now includes information about what will be supplied to ward staff when a T34 syringe driver is requested. This is Appendix 7 ‘Content of blue Box Issued from the Medical Equipment Library When a T34 Syringe Driver is Requested’

A1.9 Revised leaflet for patients or those important to them. This has been re-formatted so it can be more easily viewed on a screen and printed. It also now contains information about returns.
APPENDIX 2 Indications for, and advantages of, using a T34 Syringe Driver

A2.1 The T34 Syringe Driver provides a continuous subcutaneous infusion seeking to achieve a steady plasma concentration of medicines and should therefore be considered as an option when the following symptoms are present:-

- Persistent nausea and/or vomiting
- Dysphagia
- Mouth/throat/oesophageal lesions
- Intestinal obstruction
- Malabsorption of oral medication
- Unconscious and semi-conscious patients
- Profound weakness when patients are unable to swallow medication

A2.2 The advantages of using a T34 syringe driver are as follows:-

- Constant drug concentration levels
- Usually reloaded once in 24 hours
- No repeated injections
- Does not limit mobility
- Permits better control of nausea and vomiting
- Control of multiple symptoms with a combination of drugs (Twycross et al 2014)

A2.3. No other infusion device should be used to deliver a subcutaneous infusion of palliative care medications. If unsure which delivery device to use for a palliative care patient, please contact the Specialist Palliative Care Team.
APPENDIX 3 Procedure for Obtaining, Setting Up and Using a T34 Syringe Driver

Contents
A3.1 Obtaining a T34 Syringe Driver
A3.2 Choosing an Appropriate Infusion Site
A3.3 Inserting a Saf-T cannula or equivalent
A3.4 Monitoring a T34 Syringe Driver
A3.5 Setting Up a T34 Syringe Driver
A3.6 Re-loading a T34 Syringe Driver
A3.7 Stopping a T34 Syringe Driver
A3.8 Managing a Planned Temporary Interruption in T34 Syringe Driver Infusion
A3.9 Trouble Shooting
A3.10 Returns

A3.1 Obtaining a T34 Syringe Driver

- Contact Medical Equipment Library to request a T34 syringe driver. The information required to make this request and the contact details are set out in Appendix 3.

- T34 syringe drivers are the only delivery device that should be used to administer subcutaneous infusions of palliative and/or end of life care medication

- If Medical Equipment Library staff are unable to deliver the T34 syringe driver, or it is out-of-hours (5pm-9am Mon-Friday and at weekends), request a member of portering staff to obtain the T34 syringe driver as set out in Appendix x

- If there are any difficulties following the process, this should be escalated to the Site Managers.

- Availability of T34 Syringe Drivers can be checked via InSite
- http://insite.xuhl-tr.nhs.uk/homepage/clinical/medical-devices/t34-syringe-driver

- It is important to request a T34 syringe driver as soon as possible after a recommendation that a T34 syringe driver is made. This is because a T34 syringe driver should be commenced as soon as possible after it is recommended. This will usually be within 4 hours or 2 hours if the drugs are stock drugs on the ward. This is to allow time for the medication to be prescribed, the T34 syringe driver to be requested and brought to the ward and the drugs checked. If a T34 syringe driver cannot be set up within this time frame, an incident report should be completed.
A3.2 Choosing an Appropriate Infusion Site

Acceptable subcutaneous cannula insertion sites are as follows (See diagram):
1. Anterior chest wall (least common)
2. Anterior aspect of upper arms and thighs
3. Anterior Abdominal wall
4. Scapula region

Sites not suitable for insertion for reasons of poor absorption, discomfort, increased risk of displacement:
- Skin folds and breast tissue
- Directly over a tumour site
- Lymphoedematous limb or oedema
- The abdominal wall if ascites is present
- Bony prominences
- Previously irradiated skin
- Sites near a joint Infected, broken or bruised skin

If a local reaction occurs, the cannula must be re-sited using a fresh cannula and administration set. If this recurs, consider further diluting the drug(s).

A3.3 Inserting a Saf-T cannula or equivalent

A Saf-T 249 cannula is supplied within the blue box to ensure ease of availability when setting up a T34 syringe driver (See appendix)

A Saf-T 249 or equivalent device will be used subcutaneously –this will be attached to the syringe driver via a short infusion line. The following procedure (with rational) should be followed to insert the Saf-T device or equivalent

a. Confirm identity of the patient

b. Explain the proposed procedure to the patient and/or the family or those important to them, in keeping with Consent to Treatment and Mental Capacity Act policies.

c. Clean and wash hands with liquid soap and dry with paper towels.
d. Prepare equipment and skin in accordance with Infection Prevention UHL policy

e. Remove and dispose of clamp on the Saf-T cannula to avoid accidental occlusion

f. Rotate white safety barrel to loosen the needle

g. Grasp ridged side wings of the cannula between thumb and index finger. Remove needle sheath from Saf-T-Intima cannula making sure the eye of the needle is facing upwards at the sharpest point to enter the skin

h. Pinch skin up into a fold between thumb and forefinger and insert the cannula at 30-45 degree

i. Cover the insertion site and wings with a transparent semipermeable dressing

j. Hold the wings of the cannula firmly and remove the introducer by pulling back in a single smooth movement.

k. Dispose of sharps directly into a sharps container

A Saf-T cannula can remain in place for up to 7 days providing this is necessary and that there is no evidence of site reaction or irritation.

Medical Equipment Library should be contacted for further supplies of Saf-T cannulas are required. A stock is held at each site for this purpose.

A3.4 Monitoring a T34 Syringe Driver

- UHL staff should monitor a T34 syringe driver and associated infusion site at least every 4 hours.

- Staff should record their monitoring and action as directed on the standardised UHL T34 Syringe Driver Monitoring Form (Appendix)

A3.5 Setting Up a T34 Syringe Driver

A3.5.1 STEP 1: Confirmation of equipment, prescription and medication

a) Wash hands with liquid soap and dry with paper towels

b) Check that the T34 syringe driver and accessories are clean, visually intact and in working order and that the T34 Syringe Driver is within its service date. This should include a visual inspection to check that the battery housing appears intact.

c) Ensure that there is a prescription for the administration of medicines and that it is clear and complete, including a prescriber’s signature for each individual medication

d) Confirm the patient identity and consent to treatment
e) Confirm previous medication dose, formulation and frequency of medications relevant to those prescribed via subcutaneous infusion, including prn “as needed” medications. If there are any concerns about whether the doses are appropriate based on the previous requirements or a high number of prn doses, please raise this concern with an authorised prescriber. If specialist advice is needed, please speak to the Specialist Palliative Care Team (UHL 9-5pm Monday-Sunday, LOROS 5pm-9am). If specialist advice is sought, this should be documented by both parties.

**A3.5.2 STEP 2: Filling the syringe**

a) Check the name of the patient matches that on the prescription

b) Check the expiry date of medication and diluents to be used.

c) Correctly draw up the prescribed medication and diluents on a clean surface and make up to either the standard recommended amount of 17ml in a 20ml leurolk syringe or if required 22ml in a 30ml leurolk syringe.

d) Care must be taken when drawing up medication to distinguish between high and low strength ampoules of medication (NPSA 2008)

**A3.5.3 STEP 3: Labelling the syringe**

a) All syringes containing medications must be clearly labelled to ensure all staff can identify the syringe content, including whilst in the lockbox.

b) If there is any doubt as to the contents of a syringe, the contents should be discarded and a new clearly labelled syringe prepared as soon as possible.

c) Complete the label details in ink or other indelible print.

d) The label should state:
   - The name of the patient for whom it is intended with S number
   - The date and time of preparation
   - The initials of the person preparing the contents and the initials of the person checking the contents (if applicable)
   - The name and dose of all medications e.g. morphine 15mg, haloperidol 5mg, etc.
   - The name of the diluent e.g. water for injection
   - The total volume of the contents
   - The intended route of infusion

e) Attach the correctly completed infusion label to the syringe, wrapping label flat around syringe (the label must not be folded)
A3.5.4 STEP 4: Set up the T34 syringe driver using “LOAD AND PRIME” METHOD

a) Insert the battery correctly into the T34 syringe driver. There should be a further check that there is an adequate battery connection and that the battery housing is intact, with no signs of damage. If there are any concerns or signs of damage, do not use the pump and request another, sending the damaged pump back for servicing. A PP3 battery must be used. These are available as an Orange or Silver Battery, not blue Varta battery.

b) Before switching the T34 Syringe Driver on, ensure the barrel clamp arm is down and no syringe is in place.

c) Press and hold down the ON/OFF key until the device activates.

d) Observe pre-loading (automatic actuator movement) and check T34 syringe driver settings on display screens, paying attention to ensure that on the third screen PROGRAM LOCK ON displays during pre-loading then wait until “load syringe” screen displays. If PROGRAM LOCK OFF displays, do not use the T34 syringe driver and request a replacement device, sending the faulty device back with a message about error for servicing.

e) Check battery level by pressing INFO YES, wait a few seconds for “load syringe” screen to re-appear.

f) Ensure barrel arm clamp is in the down position. Align syringe to fitting area and use ◄◄ FF ►►Back keys to adjust if necessary so that the syringe will fit.

g) Lift and twist barrel arm clamp and insert syringe into 3 sensor areas.

h) Return barrel clamp arm to the down position to secure on top of the syringe.

i) Check syringe displayed on screen matches the brand being used (BD Plastipak or equivalent). If no syringe brand displays, re-load the syringe in the sensors.

j) Once the T34 syringe driver has calculated the infusion rate, remove the syringe from the T34 syringe driver.

A3.5.5 STEP 5: Fitting the T34 syringe driver, including connecting it to the patient

a) Attach the shortest available anti-siphon, anti-reflux latex free female Leur lock line to the loaded syringe. A Care Fusion extension line PA 100-U or equivalent is most suitable.

b) Manually prime the line by depressing the plunger on the syringe.

c) Check the solution for clouding or crystallisation. If clouding or crystallisation occurs, do not use and check with a pharmacist regarding the compatibility of drugs.

d) Return syringe to fitting area as above using ◄◄ FF key to adjust so that the syringe will fit correctly.
e) Re-load syringe into the T34 Syringe Driver and place barrel clamp arm back into place over syringe barrel

f) Check that syringe brand matches syringe displayed on the T34 Syringe Driver screen (usually BD Plastipac)

g) Check the infusion summary screen, the duration and volume in syringe will have decreased, however, the hourly rate will remain the same. If correct, press YES

h) Insert the Saf-T 249 cannula or equivalent as directed in section A3.3

i) Press YES key to start infusion

j) To activate keypad lock, press and hold INFO key until the graphic fills left to right (OFF to ON) and an audible beep is heard

k) Place the attached T34 syringe driver in the T34 syringe driver clear plastic lockable box and lock. Place this within the ‘Sunsafe’ protective bag which is supplied in the T34 syringe driver box (see appendix)

l) Ensure that the T34 syringe driver is situated away from heat and moisture

m) Dispose of Sharps in accordance with UHL Sharps policy

n) Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser

o) Ensure that appropriate documentation is completed, including all appropriate sections on the UHL syringe driver monitoring form (see appendix)

p) Prior to leaving the patient, the T34 Syringe Driver must be checked to ensure that it is running correctly

**A3.6 Re-loading a T34 Syringe Driver**

**A3.6.1 Recognising the need to re-load a T34 syringe driver**

a) As the T34 Syringe Driver approaches the end of the infusion, it will commence intermittent alarming, both audibly and visually every 3 minutes for the 15 minutes prior to completion of the infusion. Staff should be aware that they will need to plan to re-load the T34 syringe driver

b) As far as possible, staff should plan to re-load a syringe driver in a planned way before it has run out. Information from the T34 syringe driver monitoring form can help identify the time the infusion is expected to finish and staff can use this to help them plan
A3.6.2 STEP 1: Confirmation of equipment, prescription and medication

a) Wash hands with liquid soap and dry with paper towels

b) Check that the T34 syringe driver and accessories are clean, visually intact and in working order and that the T34 Syringe Driver is within its service date. This should include a visual inspection to check that the battery housing appears intact.

c) Ensure that there is a prescription for the administration of medicines and that it is clear and complete, including a prescriber’s signature for each individual medication

d) If a drug or a dose of drug is changed, please stop following this process and follow process set out in A3.5 ‘Setting up a T34 syringe driver’ but noting that the Saf-T may not need to be replaced (see section A3.3.3). This procedure should be used because a new syringe will need to be prepared.

e) Confirm the patient identity and consent to treatment

f) Confirm previous medication dose, formulation and frequency of medications relevant to those prescribed via subcutaneous infusion, including prn “as needed” medications.

g) If there are any concerns about whether the doses are appropriate based on the previous requirements or a high number of prn doses, please raise this concern with an authorised prescriber. If specialist advice is needed, please speak to the Specialist Palliative Care Team (UHL 9-5pm Monday-Sunday, LOROS 5pm-9am). If specialist advice is sought, this should be documented by both parties.

A3.6.3 STEP 2: Filling the syringe

a) Check the name of the patient matches that on the prescription

b) Check the expiry date of medication and diluents to be used.

c) Correctly draw up the prescribed medication and diluents on a clean surface and make up to either the standard recommended amount of 17ml in a 20ml Leur lock syringe or if required 22ml in a 30ml leur lock syringe.

d) Care must be taken when drawing up medication to distinguish between high and low strength ampoules of medication (NPSA 2008)

A3.6.4 STEP 3: Labelling the syringe

a) All syringes containing medications must be clearly labelled to ensure all staff can identify the syringe content, including whilst in the lockbox.
b) If there is any doubt as to the contents of a syringe, the contents should be discarded and a new clearly labelled syringe prepared as soon as possible.

c) Complete the label details in ink or other indelible print.

d) The label should state:

- The name of the patient for whom it is intended with S number
- The date and time of preparation
- The initials of the person preparing the contents and the initials of the person checking the contents (if applicable)
- The name and dose of all medications e.g. morphine 15mg, haloperidol 5mg, etc.
- The name of the diluent e.g. water for injection
- The total volume of the contents
- The intended route of infusion

e) Attach the correctly completed infusion label to the syringe, wrapping label flat around syringe (the label must not be folded)

A3.6.5 STEP 4: Re-loading the T34 syringe driver

a) To unlock keypad, press and hold the INFO key down until the black graphic moves from the right (ON) to the left (OFF). A beep is heard, confirming that the lock has been deactivated

b) Press the STOP key

c) Press and hold the ON/OFF key until the black bar moves across the screen and a beep is heard. The screen will go blank.

d) Remove the T34 syringe driver from the locked plastic box

e) Remove the completed syringe from T34 syringe driver (the T34 syringe driver must be switched off before removing the syringe)

f) Before you switch the T34 syringe driver back on, ensure the barrel clamp arm is down and no syringe is in place

g) Press and hold down the ON/OFF key. The T34 syringe driver will activate

h) Observe pre-loading (automatic actuator movement) and check the T34 syringe driver settings on display screens during pre-loading, then wait until “load syringe” screen displays. If this process fails or PROGRAM LOCK OFF displays, do not use and return the T34 syringe driver to medical equipment library for servicing and request a replacement T34 syringe driver.

i) Check battery level by pressing INFO YES, wait a few seconds for “load syringe” screen to reappear. Check battery and connections appear visually intact.

j) Align the filled syringe to fitting area and use ◄◄ FF ►►Back keys to adjust if necessary so that the syringe will fit.
k) Lift and twist barrel arm clamp and insert syringe into 3 sensor areas

l) Return barrel clamp arm to the down position to secure on top of the syringe

m) Check syringe displayed on screen matches the brand being used (BD Plastipac or equivalent). If no syringe brand displays, re-load the syringe in the sensors.

A3.6.6 STEP 5: Fitting the T34 syringe driver, including connecting it to the patient

a) Check the solution for clouding or crystallisation. If clouding or crystallisation occurs, do not use and check with a pharmacist regarding the compatibility of drugs

b) Attach the filled syringe to the existing anti-siphon, anti-reflux latex free female Leur lock line (Care Fusion extension line PA 100-U or equivalent)

c) Check the infusion summary screen, if correct press YES

d) To activate keypad lock, press and hold INFO key until the graphic fills left to right (OFF to ON) and an audible beep is heard

e) Place the attached T34 syringe driver in the T34 syringe driver clear plastic lockable box and lock. Place this within the ‘Sunsafe’ protective bag which is supplied in the T34 syringe driver box (see appendix)

f) Ensure that the T34 syringe driver is situated away from heat and moisture

g) Dispose of Sharps in accordance with UHL Sharps policy

h) Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser

i) Ensure that appropriate documentation is completed, including all appropriate sections on the UHL syringe driver monitoring form (see appendix)

j) Prior to leaving the patient, the T34 Syringe Driver must be checked to ensure that it is running correctly

A3.7 Stopping and Removing T34 Syringe Driver

a) If a person has died with the T34 syringe driver in place and there are any concerns about the circumstances of the death, or the death is unexpected, leave the T34 syringe driver in place and contact the duty manager for advice.

b) In cases of an expected death where there are no concerns about the circumstances of death, it is acceptable to remove the T34 syringe driver and line from the patient.

A3.7.3 Stopping and/or Removing a T34 syringe driver

a) Wash hands with liquid soap and dry with paper towels
b) To unlock keypad, press and hold the INFO key down until the black graphic moves from the right (ON) to the left (OFF). A beep is heard, confirming that the lock has been deactivated

c) Press the STOP key

d) If the T34 syringe driver is no longer required for the patient, press and hold the ON/OFF key until the black bar moves across the screen and a beep is heard. The screen will go blank.

e) Remove the T34 syringe driver from the locked plastic box

f) Remove the syringe from T34 syringe driver (the T34 syringe driver must be switched off before removing the syringe)

g) Immediately removes the line and cannula from the patient

h) Remove the battery from the T34 syringe driver

i) Wash hands with liquid soap and dry with paper towels

j) Ensure that appropriate documentation is completed, including all appropriate sections on the UHL syringe driver monitoring form (see appendix 6)

k) Put the T34 syringe driver back in the blue box it was supplied in. Return these to the Medical Equipment Library as soon as possible so that they can be made ready for the next use (See appendix)

l) If a T34 syringe driver is discontinued and medicine, including controlled drugs, remains in the syringe, the unused contents must be disposed of in accordance with local policy. Sharps should be disposed of in keeping with UHL Sharps Policy.

A3.8 Managing a Planned Temporary Interruption in T34 Syringe Driver Infusion (e.g. for showering)

A3.8.1 Temporarily Stopping the Infusion

a) Wash hands with liquid soap and dry with paper towels

b) To unlock keypad, press and hold the INFO key down until the black graphic moves from the right (ON) to the left (OFF). A beep is head, confirming that the lock has been deactivated

c) Press the STOP key. Press and hold the ON/OFF key until the black bar moves across the screen and a beep is heard. The screen will go blank.

d) Disconnect the infusion line from the Saf-T or equivalent cannula and cap the ends. DO NOT REMOVE THE SYRINGE DRIVER FROM THE LOCKED BOX

e) Wash hands with liquid soap and dry with paper towels.
f) Store the syringe driver in a secure location. This should be in the controlled drugs
   cupboard if the T34 syringe driver contains controlled drugs

   g) Complete the relevant documentation on the T34 syringe driver checklist. Document should include the amount remaining in the syringe, the time the infusion is interrupted for and the reason for interruption

A3.8.2 Restarting an Infusion Following an Interruption

   a) Wash hands with liquid soap and dry with paper towels

   b) Check that the T34 syringe driver and accessories are clean, visually intact and in working order. If there are any concerns, the syringe driver should be removed from the locked box and all checks should be carried out as set out in section

   c) Ensure that there is a prescription for the administration of medicines and that it is clear and complete, including a prescriber’s signature for each individual medication. This should match the label on the syringe within the T34 syringe driver (this should still be visible through the locked box).

   d) Reconnect the line to the Saf-T cannula or equivalent

   e) Press and hold the ON/OFF key until a beep is heard. The syringe will request confirmation of the syringe size and brand.

   f) Press the YES key to resume. The screen will display the remaining volume, duration and the rate of the infusion.

   g) Press the YES key to confirm

   h) Press the Yes key to re-start the infusion.

   i) To reactivate the keypad lock, press and hold INFO key until the graphic fills left to right (OFF to ON) and an audible beep is heard

   j) Wash hands with liquid soap and dry with paper towels

   k) Ensure that appropriate documentation is completed, including all appropriate sections on the UHL syringe driver monitoring form (see appendix 6)

   l) Prior to leaving the patient, the T34 Syringe Driver must be checked to ensure that it is running correctly

A3.9 Trouble Shooting

   a) If the infusion is running too fast (i.e. running more than one hour ahead of expected time) change the entire T34 Syringe Driver for a new one and send the original T34 Syringe Driver for servicing to the Medical Equipment Library

   b) If the infusion is running too slow (i.e. running more than one hour behind the expected time):-
• Check the infusion light is status indicator green and flashing
• Check the battery level
• Check the syringe is inserted correctly into the T34 Syringe Driver
• Ascertain if the T34 Syringe Driver has been stopped and re-started for any reason
• Check the contents of the syringe and line. Is there any evidence of crystallisation or kinking of the tubing?
• Check the needle site: Is this red / hard / lumpy / sore?
• Consider changing the site of further dilution of the drugs to minimise irritation by setting up a fresh syringe
• Consider metal allergy from the needle - replace line with non-metallic hypo-allergenic cannula.

c) If there are persistent problems with the site, please refer to the Specialist Palliative Care Service or LOROS

d) If the infusion continues to run through too slowly, change the entire T34 Syringe Driver for a new one and send the original T34 Syringe Driver for servicing

A3.9.3 T34 Syringe Driver Alarms

When the T34 Syringe Driver detects a problem, four things occur:-

1. The infusion stops
2. An audible alarm is activated
3. A message appears on the display screen indicating the cause of the alarm
4. The LED indicator turns RED

The alarm will sound for the follow reasons:

<table>
<thead>
<tr>
<th>LCD Display</th>
<th>Alarm Type</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occlusion of syringe empty</td>
<td>Audible and visual alarm</td>
<td>• Patient cannula / line blocked, kinked</td>
<td>Press YES to silence alarm</td>
</tr>
<tr>
<td>Syringe displaced</td>
<td>Audible and visual alarm</td>
<td>Syringe has been removed or displaced</td>
<td>Check &amp; confirm syringe is seated correctly and resume infusion The collar of the syringe should remain vertical at all times</td>
</tr>
<tr>
<td>T34 Syringe Driver paused too long</td>
<td>Audible and visual alarm</td>
<td>T34 Syringe Driver left or no key presses detected for 2 minutes</td>
<td>Start infusion, continue programming or switch off</td>
</tr>
<tr>
<td>Near end</td>
<td>Audible and visual alarm</td>
<td>15 minutes from end of infusion</td>
<td>Prepare to change syringe or switch off</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>LCD Display</th>
<th>Alarm Type</th>
<th>Possible Cause</th>
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</tr>
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<td></td>
</tr>
<tr>
<td>Near end</td>
<td>Audible and visual alarm</td>
<td>15 minutes from end of infusion</td>
<td>Prepare to change syringe or switch off</td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>Alarm Type</td>
<td>Description</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------</td>
<td>--------------------------------------------------</td>
<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>End program</strong></td>
<td>Audible and visual alarm</td>
<td>Infusion complete</td>
<td>T34 Syringe Driver will alarm. Press YES to confirm end of program and OFF to switch T34 Syringe Driver off</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermittent beep</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low battery</strong></td>
<td>Audible and visual alarm</td>
<td>Battery is almost depleted (30 mins left)</td>
<td>Prepare to change battery and resume infusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermittent beep</td>
<td>2 beeps / 3 mins silence</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>End battery</strong></td>
<td>Audible and visual alarm</td>
<td>Battery is depleted</td>
<td>Change battery and resume infusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermittent beep</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**NB:** With T34 Syringe Driver running, occlusion may take more than 2 hours to alarm. The T34 Syringe Driver operates an anti-bolus back-off system, consequently approx. 38 minutes is added to the infusion time following an occlusion.
# UHL Process for obtaining and returning a T34 Syringe Driver

**8am-4pm, M-F.** Medical Equipment Library (MEL) provides T34 Syringe Driver (MEL) to order T34 Syringe Driver and discharge pack in blue box from MEL providing the following information for tracking record:

- **Ward:**
- **Staff Member:**
- **Contact Number:**
- **Date:**
- **Patient S Number:**

---

**Call MEL To check T34 Syringe Driver availability. LRI is the only site with a mobile: 0793 9979866. Prefix 0116 258**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>GGH</th>
<th>LGH</th>
<th>LRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQUIPMENT LIBRARY</td>
<td>3480</td>
<td>4349</td>
<td>7841</td>
</tr>
<tr>
<td>MEMS WORKSHOP</td>
<td>3511</td>
<td>4657</td>
<td>6013</td>
</tr>
</tbody>
</table>

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**Porters**

- Call centre pass request and details to site and assign job. Details are put on ticket. If no stock, escalate to Duty Manager, inform ward, obtain from another site.

**Porter bring T34 Syringe Driver to ward**

---

**Process for Ward Use**

Nurse records required information on checklist found in policy Appendix 3

Medical Equipment Library liaise with ward to confirm pump still in use every 3 days or if required for discharge

---

**Process for Discharge Use**

Nurse to ensure ICE ‘Discharge Letter’ includes infusion details. Nurse ensures doctors complete syringe driver authorisation form from discharging ward. Both sides of the form to be completed. PRN/infusion.

Nurse to provide discharge information to MEL:
- **Discharge Date**
- **Destination**
- **District Nurse Contact Name, Telephone & e-mail.**

Nurse ensures syringe is changed within two hours of expected discharge time and new battery. If battery power below 50% change battery.

Ward Nurse to inform destination nursing team of the T34 infusion start time and the date and time for re-priming.

Nurse ensures TTO’s available, including all drugs and diluents for syringe driver and ward to check transport.

Nurse gives patient/relatives information, letters and Blue Syringe Driver Box and ensures they have ward contact details if there is a problem.

Discharge Patient

---

Always lock the keypad, lock box must be attached at all times

Do not use on another patient

Return to Medical Equipment Library

---

**Process for Discontinued Infusion**

Place T34 Pump and Lock Box inside T34 blue box.
Place blue box inside pre-paid jiffy bag.
Seal Jiffy bag.
Send ticket 12345678.

Please return promptly; these pumps are tracked.

---

**OOH**

- Call Porters - all sites ext. 7888.
Telephoned T34 Syringe Driver request must include hospital name and details for tracking.

---

**LOCATION**

- **GGH**
- **LGH**
- **LRI**

**EQUIPMENT LIBRARY**

- 3480
- 4349
- 7841

**MEMS WORKSHOP**

- 3511
- 4657
- 6013

---

**T34 Syringe Driver Out of Hours Ticket**

UHL Medical Physics Tag: 12345678

Ward:
- **Staff Member:**
- **Contact Number:**
- **Date:**
- **Patient S Number:**

Leave completed ticket in Red Tray in T34 store

---

If unsure, call Palliative Care Team - Ext. 5414 Mobile: 07950 888434
What is a T34 Syringe Driver?
The McKinley T34 Syringe Driver is a small, portable pump which is battery operated. It allows medicines to be given steadily under the skin over a 24 hour period.

Why Do I Need One?
The T34 Syringe Driver is an alternative way of delivering medicines to control your symptoms, e.g. this may be for pain or helping sickness. It may be needed if:-

- You are having difficulty swallowing tablets or medicines
- You are being sick
- Giving medicines in this way may help improve your symptoms

A T34 Syringe Driver may be used at any stage of your illness to control your symptoms.

How Does It Work?
Your nurse will insert a small needle or plastic tube under your skin. This will be connected by a piece of tubing to a syringe containing your medicines. The syringe is secured to the T34 Syringe Driver and placed into a protective outer case. The T34 Syringe Driver gradually pushes the syringe plunger to deliver the medicines over 24 hours. Your nurse will change the syringe every 24 hours. The needle/plastic tube will be secured with a clear dressing and usually only needs changing every few days.

How Do I Know If the T34 Syringe Driver is Working Properly?
- The person providing your T34 Syringe Driver will have checked it is working before setting it up
- A small light above the "ON/OFF" button will flash green regularly. If it turns red, there is a problem with the T34 Syringe Driver and you should contact the nurse as soon as possible

Who Will Look After It?
- Your nurse will check at least once each day that the T34 Syringe Driver is operating correctly, that you are receiving the medication prescribed and that the needle/tube is comfortable
- They will also show you some simple checks to make sure things are working properly

What Do I Do If The Alarm Sounds?
- The most important things is not to worry. It will silence itself after a short time
- Contact your nurse immediately, who will be able to advise on what to do. Please do not try to do anything yourself without speaking with your nurse. Your symptoms won’t change straightaway even if the medicine was stopped

Some Do’s
- When you are walking around, carry the T34 Syringe Driver using the carry case provided (this helps protect it from the sun) or a small bag
- When you are in bed or resting in a chair, the T34 Syringe Driver can be put on a flat surface next to you
- Your should keep the T34 Syringe Driver & cannula site dry
- Try to keep mobile phones that are switched on about an arm’s length away, as they may affect the way the T34 Syringe Driver works

Some Don’ts
- Do not interfere with the T34 Syringe Driver
- Do not get the T34 Syringe Driver or needle site wet
- Do not drop it
- Do not expose to heat or bright sunlight

Contact Your Nurse If …
- You are worried that your T34 Syringe Driver is not working properly or has been damaged
- The colour of the medicines has changed or become cloudy
- The skin around the needle/tube is red, swollen or painful

Contact Numbers
- Single Point of Access (SPA) :  0300 300 7777

Returns
The T34 syringe driver should be returned when your pump is no longer required. The nurse will remove your T34 Syringe Driver and arrange for its return. If you have any queries about its return, please contact:

Medical Equipment Management Service (MEMS), Medical Physics, Level 1
Sandringham Building, Leicester Royal Infirmary, Infirmary Square Leicester LE1 5WW

If you need help to understand this leaflet or would like it in a different language or format such as large print, Braille or audio, please ask a member of staff
**UHL T34 SYRINGE DRIVER CHECKLIST**  
*(use one sheet per T34 Syringe Driver)*

**Check Every 4 Hours**

Identify Total Number of T34 Syringe Drivers in Use *(ie. 1 of 1 or 1 of 2):* ……………………  
**Serial No:** ……………………………  
**Date:** …/…/……

**Drugs Within This T34 Syringe Driver:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Date</th>
<th>Time</th>
<th>Date</th>
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<th>Time</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start volume &amp; duration on commencing/replenishing</td>
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<td>Location of needle site</td>
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<td>SC needle batch number (when changed/commenced)</td>
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<td>Size of syringe used (ml)</td>
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<td>Remaining volume to be infused (VTBl) &amp; volume infused (VI), Press the INFO key once for this info</td>
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<td>Battery life remaining as %, Press the INFO key twice for this info</td>
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</tbody>
</table>

If you have ticked "Yes" to any questions below in the shaded cells, document action taken on evaluation sheet in notes:

<table>
<thead>
<tr>
<th>Please Tick Yes or No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinks / blocks in line?</td>
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<td>Battery changed?</td>
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<td>Redness, pain, swelling or leakage at needle site?</td>
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<td>Re-sited?</td>
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<td>Check patient 4 hourly?</td>
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</tbody>
</table>

If you have ticked "No" to any questions below in the shaded cells, document action taken on evaluation sheet in notes, including incident forms and escalation to medical team if appropriate:

<table>
<thead>
<tr>
<th>Please Tick Yes or No</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are symptoms controlled?</td>
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<td>Is solution clear in syringe?</td>
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<tr>
<td>Syringe correctly inserted into T34 Syringe Driver?</td>
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<tr>
<td>Is the indicator light flashing every 32 seconds?</td>
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<tr>
<td>Is the display screen showing “pump delivering”?</td>
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</tr>
<tr>
<td>Is the amount left in the T34 Syringe Driver correct for the time allowed?</td>
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<tr>
<td>Is the keypad locked?</td>
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<td></td>
</tr>
</tbody>
</table>

**PRINT NAME / SIGNATURE / DESIGNATION:**

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Policy for the Use of the Ambulatory T34 Syringe Driver in Adults Receiving Palliative and/or End of Life Care in the University Hospitals of Leicester NHS Trust

Version 1 Approved by Policy & Guideline Committee 16 November 2018  
Trust ref: B29/2018

next review: November 2021

NB: Paper copies of this document may not be most recent version. The definitive version is held on INsite Documents
Contents of Blue Box Issued from the Medical Equipment Library when a T34 Syringe Driver Is Requested

- T34 Syringe Driver
- T34 Syringe Driver Lockbox
- Light (Sunsafe) Protective Pouch
- Batteries PP3 x2 (Orange or Silver Battery, not blue Varta)
- Return to Medical Physics Labelled Polythene Bag
- Information in the T34 Syringe Driver Box
- Saf-T cannula or equivalent
- Short infusion line
### T34 Syringe Driver Safe User Training and Requirements

Suggested assessment. “Demonstrate: means the candidate must carry out an action. “State” means the person must answer a question or provide a commentary to explain their action.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Topic</th>
<th>Competence</th>
<th>Training Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Policies for clinical and logistics processes</td>
<td>State: where to find it</td>
<td>Policy found on Insite under Clinical Guidelines and Policies (“Ambulatory”) and inside the T34 Syringe Driver blue box or on the ward for T34 logistics process (flow chart)</td>
</tr>
<tr>
<td>1.2</td>
<td></td>
<td>State: Key knowledge of policy</td>
<td>Must know to: 1. Inform DN that patient is being discharged with McKinley T34 Syringe Driver and must be swapped with community device within 24hrs. 2. Inform DN expected time T34 Syringe Driver will need re-priming 3. Order T34 Syringe Driver and discharge pack, give patient identification 4. Follow the flow chart logistics process, particularly 7 days support differences</td>
</tr>
<tr>
<td>2.1</td>
<td>T34 Syringe Driver Basics</td>
<td>State: Location of Lock Box key</td>
<td>Key kept within CD cupboard</td>
</tr>
<tr>
<td>2.2</td>
<td></td>
<td>State: Appearance expectations: Plastic casing intact Plastic casing Buttons Buttons readable Battery appearance Labels Orange or Silver Battery, not blue Varta Sunlight Within its compartment, metal contacts should keep the battery secure. Ensure that the battery is not loose. If you find problems with the battery connections, contact your hospital servicing department to arrange for them to adjust the battery housing connection. In date for service T34 Syringe Driver may stop in direct sunlight. Make sure patient is made aware and provide protection i.e. special pouch.</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Administration</td>
<td>State: Syringe acceptable types/sizes</td>
<td>Only 20 or 30ml BD Plastipak with Leur lock end</td>
</tr>
<tr>
<td>3.2</td>
<td></td>
<td>State: Giving Set acceptable types/sizes</td>
<td>Shortest available giving set. Care Fusion extension line PA 100-U or equivalent</td>
</tr>
<tr>
<td>3.3</td>
<td></td>
<td>State: Needle acceptable types/sizes</td>
<td>Saf-T or equivalent Give site example of ward which has them - GH:CDU,LGH:22,LRI:42/43</td>
</tr>
<tr>
<td>4.1</td>
<td>Battery</td>
<td>Battery power State: the minimum acceptable remaining battery capacity. How long the battery will last from the start of a low battery alert.</td>
<td>At time of preparing for infusion, battery must be replaced if less than 50% power Low battery power whilst infusing Alerts are given to warn of low power about 30 minutes before no power. Removal Slide cover off Lift up either top or bottom of battery with fingers, NOT battery compartment lid Insertion Remove battery terminal covers Orientate battery so that castellated contact is nearest T34 Syringe Driver base</td>
</tr>
</tbody>
</table>

Appendix 8
### 5.1 Start

**Demonstrate:** Switch ON

**State:** purpose of Pre-load and Key press delay alert

**Press on/off switch**

Pre-load clears the memory. The actuator moves to the rear then forward. If it traps fingers/ clothing, use FF/back keys to release

If T34 Syringe Driver is ON and not infusing, T34 Syringe Driver will sound alarm if more than 2 minutes from last key press.

### 5.2Interrupted Infusion

**State:** implications of “YES to Resume” and “NO for New Syringe”

If after clearing an occlusion, replacing the battery or similar interruption to infusion, “NO for New Syringe” is selected, the existing syringe will be assumed to be chosen for an infusion over another 24hours.

Always immediately following the start of infusion, set the KEYLOCK (press/hold “INFO” key) because this disables the “NO for New Syringe” option.

### 6.1 Load Syringe

**Demonstrate:** Draw up syringe

**State:** how much for 20/30ml syringes

**Demonstrate:** manually moving actuator to properly fit syringe in position and lifting/lowering barrel clamp

**Demonstrate:** use of “Info” key

**State:** Explain what information is needed

Attach correctly completed infusion label to the syringe, wrapped flat, not folded

20ml syringe draw 17ml. 30ml syringe draw 22ml

Actuator is moved using FF/Back keys to align with syringe plunger. The actuator can only be moved with power on, barrel clamp arm down and no syringe in place.

The T34 Syringe Driver uses 3 points to correctly identify the brand and size once the syringe is correctly positioned.

Battery capacity check >50%

Attach correctly completed infusion label to the syringe, wrapped flat around syringe (the label must not be folded).

### 6.2 Confirm Programme

**State:** Expected Volume, Duration and Rate

**Demonstrate:** “YES”

For a 20ml syringe, expect to see:

- Volume: 17ml (+/- 0.5ml)
- Duration: 24:00
- Rate: 0.65-0.75ml/h

For a 30ml syringe, expect to see:

- Volume: 22ml (+/- 0.5ml)
- Duration: 24:00
- Rate: 0.65-0.75ml/h

### 7.1 Prime Syringe

**Demonstrate:** At Prompt: “Start Infusion?” remove the syringe.

Manually prime line and needle

Make sure syringe is lifted vertically to avoid excess force against actuator.

The amount used to prime depends on the giving set.

Needle must be included in the prime to remove air.

### 8.1 Reload Syringe

**Demonstrate:** manually moving actuator to properly fit syringe in position and lifting/lowering barrel clamp

**Demonstrate:** use of “Info” key

**State:** Explain what information is needed

A lesser amount will be in the syringe and a finish time shorter than 24hours.

Info is to check whether Battery capacity >50%

### 8.2 Confirm Programme

**State:** Expected Volume, Duration and Rate

**Demonstrate:** “YES”

For a 20ml syringe, expect to see a drop in volume and minutes:

- Volume: about 13-16ml, but depends on giving set
- Duration: 23:57
- Rate: 0.65-0.75ml/h

For a 30ml syringe, expect to see:

- Volume: about 18-21ml, but depends on giving set
- Duration: 23:57
- Rate: 0.NN-0.NNm/h
<table>
<thead>
<tr>
<th>Section</th>
<th>Action</th>
<th>Details</th>
</tr>
</thead>
</table>
| 8.3 | Insert Cannula Start Infusion | State: Insert cannula
Demonstrate: At Prompt: “Start Infusion?” enter “YES”
Immediately set key lock, hold down “Info”
Place T34 Syringe Driver inside lock box, always place inside sunlight protective cover. |
| 9.1 | Check Progress | State: Use “Info” key
LED Display
“Info” gives VI/VTBI and Battery state
A green LED above the on/off switch lights every 30 seconds
The display shows “Pump Delivering” |
| 9.2 | Alarms | State: Alarms
When in an alarm activates, Red LED illuminates
Display message
T34 Syringe Driver stops and alarm sounds continuously |
| 10.1 | End of Infusion | State: How long the infusion will last from the start of a syringe nearly empty alert.
Alerts are given to warn of syringe nearly empty about 15 minutes before end. |
| 10.2 | Replace Syringe | Demonstrate: Key Lock remove Stop
On/Off--OFF
Syringe replacement must always be done by removing key lock, pressing “Stop” and switching T34 Syringe Driver OFF. This resets the T34 Syringe Driver |
| 11.1 | | Demonstrate: new syringe replacement
There is no need to prime line. Best practice is:
Remove key lock, press “Stop” and switch T34 Syringe Driver OFF. This resets the T34 Syringe Driver
Draw up new syringe
Bring new syringe next to T34 Syringe Driver
Transfer giving set from old to new syringe
Remove old syringe from T34 Syringe Driver
Switch on new T34 Syringe Driver, wait for pre-load Position actuator
Place new syringe in position
Check correct brand and size
Confirm volume (17/22) and duration (24.00)
Start Infusion
Set Key lock
Insert T34 Syringe Driver in lock box
Insert lock box in bag |
| 12.1 | After Use | State: disposal route for Syringe, Giving set and needle
Dispose of any remaining medicine following standard protocols. Dispose of empty syringe, giving set and needle in Sharps bin |
| 12.2 | | State: storage for T34 Syringe Driver
Clean using Distel wipes
Return to UHL Medical Equipment Library |
| 12.3 | | State: Adverse Incidents process
Defective T34 Syringe Driver process
DATIX
Return to Medical Physics with decontamination form |