POLICY TITLE: **T34 and BodyGuard T Syringe Driver Policy for use in the Palliative Care of Adults and children in LOROS and Leicestershire Partnership NHS Trust**

POLICY NUMBER: **3.12**

Is this a new policy: Yes ☐ **No** ☒

Name of policy section lead:	Jo Polkey	**Job title:**	Director of Patient Services & Clinical Quality
Author:	Sarah Boniface	**Job title:**	Practice Development Practitioner
Involved in Consultation	Practice Development Practitioner, LOROS Clinical Educational Lead, LPT Specialist Palliative Pharmacist, LOROS, LPT		
To be completed if the policy has been amended/ updated	Where T34 is mentioned BGT is also included. Appendices have been updated.		
Date approved:	March 2023		
Approved by:	Clinical Governance Committee		
Latest review date:	March 2023	**Version:**	3
Next review date	March 2026		

Contents

1.0 CONTRIBUTION LIST

Key individuals involved in developing the document

Name	Designation
Sarah Boniface	Practice Development Practitioner, LOROS
Sue Swanson	Clinical Educational Lead, LPT
Mobin Patel	Specialist Palliative Pharmacist, LOROS, LPT

Circulated to the following individuals for comments

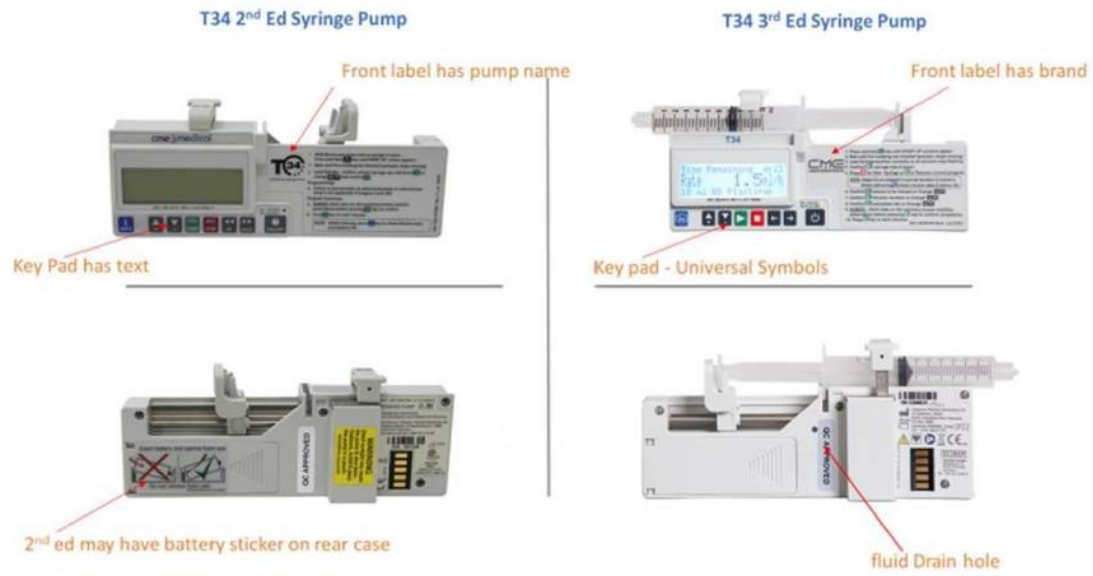
Name	Designation
Jo Polkey	Director of Patient Services & Clinical Quality
Jo Hyde	Head of Inpatient & Day Therapy Services
Caroline Plumb	Head of Community & Outreach Services
Luke Feathers	Medical Director
Richard Hill	Facilities & Operations Manager
Michelle Law	Service Lead, ICSPC
Debbie Leafe	LPT Clinical Education Lead
Julie Potts	Diana Palliative Care lead Nurse
Katie Willetts	LPT

2.0 INTRODUCTION

This policy provides information on the guidance for the use of T34 2nd Edition, 3rd Edition and BD BodyGuard T (BG T) syringe driver pumps within healthcare organisations across Leicester, Leicestershire and Rutland. The framework includes the indications for use, procedure for setting up and the information required in terms of drug therapy for use in the 2nd Edition, 3rd Edition and BD BodyGuard T T34 syringe driver pumps. The policy relates only to symptom control using drugs via the subcutaneous route in relation to palliative and terminal care.

It must be noted that this policy relates to the care of adult patients and to the care of children and young people.

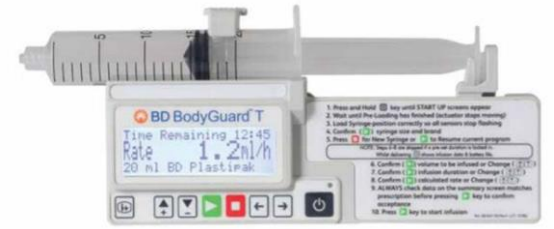
Images showing the difference between 2nd and 3rd edition pumps:



The T34 syringe driver was introduced in 2011 in phases across Leicester, Leicestershire and Rutland in response to the requirements of the NPSA alert entitled 'Safer Ambulatory Syringe Drivers' (NPSA/2010/RRR019). The T34 replaced all Graseby MS26 and MS16A Syringe Drivers which have since been decommissioned. In addition to this moves to reduce dosing errors with opioid medicines had previously been highlighted (NPSA/2008/RRR05).

In April 2018 the manufacturer released an updated version of the T34 syringe driver pump, referred to as the T34 Syringe Driver 3rd edition. The manufacturer produced this version ensure compliance with version 3.1 of the medical electrical equipment and systems standard IEC 60601-1. In response to this manufacturer recommendation, phasing in of this device commenced in June 2020.

In 2020 the manufacturer released an updated version of the T34 syringe driver pump, referred to as BD BodyGuard T (BG T). Phasing in of this pump commenced in October 2021 to replace any recalled syringe drivers.



3.0 POLICY AIMS

The aim of this policy is to:

- Promote procedural uniformity amongst practitioners when using the T34 2nd Edition, 3rd Edition and BD BodyGuard T syringe drivers.
- Clarify roles and responsibilities of clinicians and managers.
- Provide information to support staff in a safe and consistent manner in accordance with current legislation, national and local guidance and 8 professional standards and in particular remain compliant with:

a) The requirements of the NPSA alert entitled 'Safer Ambulatory Syringe Drivers' (NPSA/2010/RRR019) (2010).
b) The Priorities of Care for the Dying Person (Leadership Alliance for the care of Dying people, 2014).
c) NICE guidance NG31 Care of Dying Adults in the Last Days of Life (2015).
d) NICE guidance NG61 End of Life Care for Infants, Children and Young People with Life Limiting conditions, planning and management (2019).
e) European Union (council Directive (2010) 2010/32/EU Prevention of Sharps Injuries in the Hospital and Healthcare Sector.

4.0 POLICY SCOPE

4.1 This policy applies to all registered nursing staff and doctors, who are expected as part of their role to manage T34 2nd Edition, 3rd Edition and BD BodyGuard T syringe driver pump, and are employed within LOROS and Leicestershire Partnership NHS Trust.

4.2 Note should also be taken of the following policies / legislation / standards:

- Anaphylaxis Policies
- Care and Control of Medicines Policies/The Leicestershire Medicines Code
- Consent to care and treatment Policies
- Controlled Drugs Policies
- Drug Error Policies
- Incident Reporting Policies
- Infection Prevention and Control Policies
- Medical Devices Policy 3.19
- Mental Capacity Act (2005) legislation
- Nursing and Midwifery Council (NMC) (2018) The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates. London: NMC
- Royal Pharmaceutical Society (RPS) (2018) Professional guidance on the safe and secure handling of medicines
- Health Education England (HEE) (2018) Advisory guidance on administration of medicines by nursing associates
- Record keeping and documentation Policies
- Reporting of Untoward Incidents Policies
- Safeguarding Children and Adult Procedures
- Medicines Management Policy 3.23

5.0 JUSTIFICATION FOR DOCUMENT

This policy applies to registered nurses and doctors who are expected as part of their role to care for people who are suffering from symptoms related to palliative or terminal illness. Those clinicians have a responsibility to be able to safely and correctly manage symptoms through the use of the T34 2nd Edition, 3rd Edition and BD BodyGuard T syringe driver pumps.

6.0 ROLES AND RESPONSIBILITIES within the organisation:

6.1 The Medical Lead and Director of Care Services are responsible at Board level for the management of medical devices throughout LOROS and LPT.

6.2 AUTHORISED PRESCRIBERS

Are responsible for:

- Clinically assessing patients in order to effectively manage the patients' symptoms.
- To correctly prescribe medication for the patient ensuring that PRN medication is prescribed to manage break through symptoms.
- To seek advice from a specialist unit when appropriate (LOROS 0116 2323771).

6.3 QUALIFIED HEALTHCARE PROFESSIONALS USING THE EQUIPMENT

Are responsible for:

- Attending a T34 / BG T training session and successfully achieve competency in the use of T34 / BG T syringe driver prior to use through assessment using the LCAT tool (Leicester Clinical Assessment Tool) (McKinley, R.K et al 2008) (Appendix 3) and the Medical Device Competency / Checklist for their area (Appendix 5 and 6).
- Evidencing their competence annually at appraisal and where appropriate to the organisation attend an annual mandatory training update with records of attendance kept.
- Ensuring all patients have the correct documentation in place to support the use of the syringe driver and when required Care in the Last Days of Life documentation.
- Checking that the equipment is in good working order before use, reporting any defects to the Operations Department in a timely manner and quarantining the device to prevent its use. This includes;

  a) Ensuring the battery has adequate connection with the battery housing and connections (MDA/2018/010).

  b) Ensuring that prior to use the Date/time are correct and adjust if required (Appendix 8) (FSN MMS-21-3992) (2021)

  c) Visual observation when setting up / changing syringe in pump for "wear / tear" effects that may cause the actuator to not move (MMS-19-1572)

- Ensuring that prior to, and during use, the equipment is fit for purpose or reported to the operation department in accordance with the Medical Device policy.

a) Ensuring that any 3rd Edition T34 syringe driver pumps with a serial number of S00402878 and onwards have had the manufacturer's recommended software upgrade and any 3rd Edition T34 syringe driver pumps prior to this are no longer in use. (MMS-21-3999).

- Ensuring pouches are used, during use, to protect the pump. In particular with the T34 2nd Edition syringe driver pump to protect from exposure to direct sunlight; in accordance with manufacturer recommendations (MDA/2016/002).

- Ensure that consent has been sought and obtained before any care, intervention or treatment described in this policy is delivered. Consent can be given orally and/ or in writing. Someone could also give non-verbal consent as long as they understand the treatment or care about to take place. Consent must be voluntary and informed and the person consenting must have the capacity to make the decision.

- In the event that the patient's capacity to consent is in doubt, clinical staff must ensure that a mental capacity assessment is completed and recorded. Someone with an impairment of or a disturbance in the functioning of the mind or brain is thought to lack the mental capacity to give informed consent if they cannot do one of the following;

  a) Understand information about the decision
  b) Remember that information
  c) Use the information to make the decision
  d) Communicate the decision

- Adhering to this policy and ensuring that the correct documentation is completed, dated and signed in a manner that is clear, legible and accurate. (NMC 2018)

- Ensuring that when a T34 / BG T syringe driver pump is discontinued and medicines, including controlled drugs, remain in the syringe and line, the unused contents are denatured and disposed of according to the relevant Medicines Management policies and Leicestershire Medicines Code.

- Ensuring that measures are taken to ensure that any T34 / BG T syringe driver pump belonging to another organisation is returned safely to that organisation at the first available opportunity, and that as soon as practically possible infusions are continued using T34 / BG T syringe driver pumps belonging to the area the patient is being cared for.

7.0 EDUCATION AND TRAINING REQUIREMENTS

7.1 There is a need for training identified within this policy, in accordance with the classification of training outlined in the relevant organisations.

- LOROS Development Pathway - currently under review.
- LPT Trust Learning and Development Strategy (Appendix 4).

7.2 Training must be sourced through each organisation's individual training portfolio.

- LOROS this is UnicornLMS system
- LPT this is the Ulearn system. For FYPC, this is an annual update given by Diana Clinical Leads.

These systems will identify: who the training applies to, the delivery method, the update frequency, the learning outcomes and a list of available dates and locations where the training can be accessed. A record of the staff training will be recorded on the relevant system.

7.3 Attending a T34 / BG T syringe driver pump training session and successfully achieve competency in the use of T34 / BG T syringe driver pumps prior to use through assessment using the LCAT tool (Leicester Clinical Assessment Tool) (McKinley, R.K et al 2008).

7.4 The use of LCAT (Leicester Clinical Assessment Tool) (McKinley, R.K et al 2008) is the framework used within LOROS and LPT to assess competence in clinical procedures. It is used in conjunction with the relevant "Show Me You Know, Show Me You Can" form.

7.5 Staff who train and assess competency in the use of the T34 syringe driver pumps must:

- Have attended and completed the BD/CME Medical T34 training session or an in-house session based on the BD/CME training.
- Be a qualified health care professional who is competent in this skill.
- Have a sound knowledge of relevant policies and procedures.
- Be identified by the organisation as an LCAT assessor / trainer.
- If using the LCAT tool the assessor must be a licenced LCAT assessor.

8.0 MONITORING AND REVIEW

This policy will be monitored within the relevant organisation as appropriate. In LOROS this will be by the heads of department by means of a review of incidents and complaints of those cases where it is demonstrated that a T34 syringe driver pump has been used in the care of a patient.
Findings and learning from incidents and complaints will be shared across LOROS and LPT services.

9.0 LINKS TO CQC STANDARDS

This policy will support the following standards:

TARGET/STANDARDS	**KEY PERFORMANCE INDICATOR**
CQC standard. Services will be safe.	Evidenced by ensuring clinicians are appropriately trained in the use and management of the T34 syringe driver pump
CQC standard. Services will be effective.	Evidenced by ensuring this policy is underpinned by current national guidance and evidence.

CQC standard. Services will be caring.	Evidenced by ensuring clinicians maintain patients' dignity and privacy, consider mental capacity and that information is made available to patients about the choices they have.
CQC standard. Services will be responsive.	Evidenced by having developed this policy in partnership with local healthcare partners to ensure a seamless service for the patients.
CQC standard. Services will be well-led	Evidenced by rigorous governance procedures that capture untoward incidents in an open and transparent manner

10.0 REFERENCES

1. Becton, Dickinson U.K. Limited (BD) Caesarea Medical Electronics (CME) (2020) Field Safety Notice MMS-19-1572. Berkshire: Becton, Dickinson U.K. Limited (BD) Caesarea Medical Electronics (CME)
2. Dickman A, Schneider.J (2016) The Syringe Driver: Continuous Subcutaneous Infusions in Palliative Care (4th ed). London: Oxford University Press
3. European Union (council) Directive (2010) 2010/32/EU Prevention of Sharps Injuries in the Hospital and Healthcare Sector. Bilbao: European agency for Safety and Health at Work. Available at https://osha.europa.eu/en/legislation/directives/council-directive-2010-32-euprevention-from-sharp-injuries-in-the-hospital-and-healthcare-sector. Accessed 19.10.17
4. Health Education England (2018) Advisory guidance on administration of medicines by nursing associates. Available at https://www.hee.nhs.uk/sites/default/files/documents/Advisory%20guidance%20-%20administration%20of%20medicines%20by%20nursing%20associates.pdf . Accessed 27.07.2020
5. House of Lords (2005) Mental Capacity Act. London: The Stationery Office Limited
6. 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.
7. Medicines & Healthcare products Regulatory Agency (2018) Medical Device Alert MDA/2018/010. London: Medicines & Healthcare products Regulatory Agency
8. McKinley R.K, 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
9. National Patient Safety Agency (2010) Safer Ambulatory Syringe Drivers (NPSA/2010/RRR019). London: National Patient Safety Agency
10. National Patient Safety Agency (2018) Reducing Dosing Errors with Opioid Medicines (NPSA/2008/RRR05). London: National Patient Safety Agency

11. NICE (2015) NG31: Care of dying adults in the last days of life. Available at www.nice.org.uk/guidance/ng31. Accessed 27.07.2020

12. Nursing and Midwifery Council (NMC) (2018) The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates. London: NMC

13. Royal Pharmaceutical Company (2018) Professional guidance on the safe and secure handling of medicines.

    Available at https://www.rpharms.com/recognition/setting-professional-standards/safe-and-secure-handling-of-medicines/professional-guidance-on-the-safe-and-secure-handling-of-medicines. Accessed 27.07.2020

14. Royal Pharmaceutical Company and Royal College of Nursing (2019) Professional guidance on the administration of medicines in healthcare settings.

    Available at https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Professional%20standards/SSHM%20and%20Admin/Admin%20of%20Meds%20prof%20guidance.pdf?ver=2019-01-23-145026-5677. Accessed 27.07.2020

15. Wilcock A. Howard P. Charlesworth S. (2022) Palliative Care Formulary 8th Edition Palliativedrugs.com

11.0 DUE REGARD

As part of its development, this standard operating procedure and its impact on equality have been reviewed in line with the Equality Act (2010). The purpose of the Equality Impact Assessment is to ensure that there has been due regard given to the protected characteristics to minimize and wherever possible. Remove any disproportionate impact on individuals. The protected characteristics are as follows; age, disability, gender reassignment, marriage or civil partnership, pregnancy and maternity, race, religion or belief, sex, sexual orientation.

Appendix 1

Clinical Guidance for managing the T34 and BG T syringe driver pump

STORAGE AND EQUIPMENT REQUIRED FOR ALL VERSIONS OF T34 and BG T SYRINGE DRIVER PUMPS

It is recommended that all syringe driver pumps should be stored safely in the treatment room/practice base in a clearly labelled, designated area.

It is recommended that all syringe driver pumps should be stored with the approved battery in the situ and the date/time is correct prior to its next use. If the pump is stored without a 9V battery, verify the date and time is accurate prior to commencing set up and amend if necessary (Appendix 8). (FSN MMS-21-3992) (2021)
All the items required to set up and operate the device, so that the device is ready to be used as required without delay, should also be stored:

LOROS - in the treatment room within the designated areas

Community setting - placed within the approved container (Appendix 7a adults, Appendix 7b Diana Service LPT). A logbook must be kept detailing the whereabouts of the device at all times and the members of staff responsible for issuing and returning/restocking the device/container. Diana service document this on a database and within a child's SystmOne Records.

Within the community setting no diluents or medications are to be stored with the devices as these must be prescribed and dispensed on an individual named patient basis.

The principle of utilising safer sharps needles must be adopted.

Members of staff are responsible for issuing on loan, returning of devices belonging to other organisations and restocking of equipment in the treatment room.
All staff should be aware that it is the responsibility of the person returning the device/container to check, clean and restock it this must not be delegated to another person.

Approved 9V battery should be used in accordance with manufacturer recommendations and guidance shown in:

SETTING UP THE T34 2nd EDITION SYRINGE DRIVER PUMP (Appendix 9)

SETTING UP THE T34 3rd EDITION and BD BODYGUARD T SYRINGE DRIVER PUMP (Appendix 10)

Control of multiple symptoms with a combination of drugs (Wilcock et al 2022)

- A list of commonly used drugs for use with adult patients can be found in Appendix 17

PROCEDURE

Pre-Procedure
Correctly identify the edition of syringe driver to be used.
Consider if an immediate dose if medication subcutaneously is required as the 24-hour infusion will not take immediate effect.

Prior to setting up a T34 / BG T syringe driver pump the patient and/or family/carer as appropriate should be given a clear explanation of the reason for suing the device and how it works.

If the patient has capacity, informed consent should be obtained and documented prior to commencing the procedure.

Where a patient's capacity to consent is in doubt, a formal capacity assessment must be completed and thereafter a best interest's decision, involving appropriate professionals and involved persons needs to be made.

Where possible to anticipate a patient's potential lack of capacity to consent, the use of a syringe driver should be discussed and views of patient recorded within the End of Life documentation. This can then be referred to within the care plan.

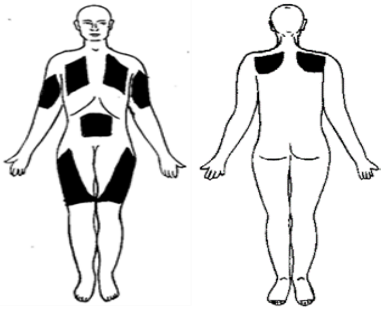
For further information please refer to the Mental Capacity Act (2005) or local accompanying organizational policy.

Consider if an immediate dose of medication subcutaneously is required as the 24-hour infusion will not take immediate effect.

Choice of infusion site

Acceptable subcutaneous cannula insertion sites are as follows (see diagram below).

- Anterior aspect of the upper arms or anterior abdominal wall
- Anterior aspect of thigh
- The scapular if the patient is distressed and /or agitated
- Anterior chest wall (least common)



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

INSERTION OF SAF-T CANNULA OR EQUIVALENT

A Saf-T-Intima or equivalent device will be used subcutaneously. This will be attached to the syringe driver pump via an appropriate extension set as follows;

a) Confirm identity of the patient
b) Explain the proposed procedure to the patient and/or family to gain informed consent
c) Clean and wash hands with liquid soap and dry with paper towels
d) Prepare equipment and skin in accordance with the organisations infection prevention and control policy
e) Remove and dispose of Saf-T cannula clamp, to avoid accidental occlusion
f) Rotate opaque safety sheath to loosen the needle
g) Grasp ridged side wings of the cannula between thumb and index finger. Remove needle sheath from Saf-T cannula, making sure the bevel in facing upwards.
h) Pinch skin up into a fold between thumb and forefinger and insert the cannula at a 30-45 degree angle
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 sharp's container

The site need not be changed for up to 72 hours, or longer if the site is visibly checked and is viable (sites may last for 7 days or longer). 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).

CLEANING AND DECONTAMINATION

The Manufacturer Recommended Cleaning (MRC) protocol is NOT intended to replace local Infection Prevention and Control Policy. The decision about the level of decontamination required depends not only on how the device is used, but also on the risk of the device transmitting infection or acting as a source of infection.
INTENT:

- To preserve pump performance.
- To remove soil, particles and chemical residue that could accumulate over time on pump surface. Soil, particles and chemical residue result from normal use and from the "disinfection protocol" developed by users at point of use.

INSTRUCTIONS

- To clean the pump, wipe the external pump surface using a disposable alcohol wipe 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.

FREQUENCY

- It is recommended to apply the MRC protocol to the pump after each disinfection sequence as a preventative measure to maintain pump performance and longevity (removal of chemical residue).
- Note: preventive maintenance also helps to maintain pump performance over time.
- Turn off the syringe pump before cleaning
- When fluid ingress is suspected, stop using the syringe pump and request pump verification through maintenance to identify potential need of corrections.
- Immersing the syringe pump into liquid could cause damage to components. Do not soak or immerse any part of the syringe pump or the syringe pump charger in any type of liquid.
- If other chemical cleaning agents are used for “disinfection protocol/regime”, ensure to follow the manufacturer recommended cleaning to preserve pump performance, after completing the “disinfection protocol/regime”.
- Do not spray or rinse cleaning solutions directly on pump surfaces or in potential liquid retention areas or open ports such as electrical connections.
- Avoid using chemicals that can damage the surfaces of the instrument (for example chlorinated solvents).
- When using cleaning solutions containing chemicals (such as corrosive agents), do not use concentrated solutions and do not expose surfaces about the recommended dwell time. After application, rinse surfaces with IPA disposable wipes to eliminate chemical residue.
- Do not steam, autoclave, EO (ethylene oxide) sterilise, immerse the syringe pump charger in any type of fluid, or allow fluids to enter the syringe pump case.

When the time comes to dispose of the pump, accessories or packaging do so in the best way to minimise any negative impact on the environment. You may be able to use special recycling or disposal schemes.

Used syringe extension sets should be considered bio-hazardous and treated (handled, disposed or processed) as potentially posing significant risks of infection transmission to humans or harming the environment. Please follow any applicable national and institutional guidelines for bio-hazardous materials treatment.

MEDICATION ERRORS, NEAR MISSES OR EQUIPMENT FAILURE

This policy should be read in conjunction with individual organisational drug error, medical device and incident reporting or equivalent policy.

In the event of a drug error, or a near miss or where a piece of equipment may have failed, it is essential where appropriate to inform the line/duty manager and complete the recognised organisational incident reporting form.

In the event of an adverse patient outcome, or suspected adverse outcome, this must be reported immediately via the safeguard system recognized within the organisational area.

Appendix 2

Learners Name:	**Competency: Setting up a T34 / BG T Syringe Driver Pump** This competency is adapted from Skills for Health CHS49 (Accessed July 2021) and LOROS/LPT Syringe Driver Policy for use in the Palliative Care of Adults in Primary and Secondary Care in Leicester, Leicestershire and Rutland 2021

DESCRIPTOR OF CLINICAL SKILL: This competency covers the correct use of the Syringe Driver Pump when used for managing symptoms in the palliative care of adults

- For use within Inpatient units, residential and nursing homes and an individuals own home.
- The competency is intended to cover adults patients only across CHS/MHSOP & AMH/LD divisions.

SHOW ME YOU KNOW:	**Date achieved**	**Assessor:Print Name and sign**
Where to find information pertaining to the use of the ambulatory syringe driver/pump within LPT.		
The indications for the use of the ambulatory syringe driver pump.		
The advantages of using a syringe driver pump.		
Common and acceptable subcutaneous infusion insertion sites. Sites not suitable for insertion and why?		
Four examples of commonly used drugs for use in a syringe driver pump in palliative care and their indications for use.		
The nurse's role and responsibilities in regard to the syringe driver pump.		
Which syringes and lines should be used with the syringe driver pump and why.		
The possible problems which could arise during the infusion delivery using a syringe driver and examples of what your actions would be.		
The importance of correct documentation.		
The frequency and range of checks that need to be completed post commencement of infusion using a syringe driver pump.		
The advice to be given once the syringe driver pump is in use.		

SHOW ME YOU CAN:

This is assessed using the LCAT assessment tool. The assessor will apply their expertise with due consideration of the context of practice eg. a domestic , clinic, ward based setting. The assessor will be informed by national standards and trust policy in relation to the skill being assessed. You may have been issued with a full LCAT booklet which you should use to record your assessments.

Appendix 3

COMPETENCY ASSESSMENT CRITERIA – GENERIC LCAT TOOL

Competency will be assessed by and authorised LCAT assessor using the LCAT assessment tool in conjunction with the 'Show me You Know', Show me You Can' form (Appendix 2).

Prior to assessment candidates must:

- Attend the T34 / BG T syringe driver training session run throughout the organisation.
- Work through this policy.
- Be aware of the areas of assessment as per the LCAT assessment below.
- All five categories will be assessed.

Category and component competence	
1.0	**Communication and working with the patient and/or representative**
	1.1 Introduces self to patient and/or their family 1.2 Shares information about the procedure appropriately 1.3 Listens attentively 1.4 Answers questions honestly 1.5 Checks patient's understanding 1.6 Obtains valid and continuing consent 1.7 Works with the patient to maintain co-operation 1.8 Use of communication skills 1.9 Performs procedure in a compassionate and patient-centred manner
2.0	**Safety**
	2.1 Checks patient's identity correctly 2.2 Checks/completes request and/or documentation correctly 2.3 Labels samples/printouts correctly 2.4 Applies procedure-specific safety measures correctly 2.5 Is aware of limitations of personal competence and role, and acts appropriately 2.6 Maximises own and others safety 2.7 Offers appropriate post procedure care to the patient
3.0	**Infection Prevention**
	3.1 Washes and/or decontamination hands 3.2 Prepares patient's skin appropriately 3.3 Uses anti-infection barriers as required 3.4 Displays appropriate practice of aseptic technique 3.5 Disposes of waste appropriately 3.6 Optimises infection prevention within environmental limitations
4.0	**Procedural Competence**
	4.1 Assesses the patient appropriately 4.2 Assesses the indications for and contra-indications the procedure 4.3 Plans the procedure with respect to patient factors 4.4 Prepares the patient appropriately 4.5 Selects and checks equipment, disposables and consumables 4.6 Performs procedure fluently 4.7 Displays familiarity with equipment 4.8 Displays knowledge of the procedure 4.9 Uses assistance appropriately 4.10 Handles samples/ensures quality control of outputs correctly 4.11 Deals appropriately and sensitively with the evolving situation 4.12 Demonstrates respect for tissue
5.0	**Team working**
	5.1 Displays understanding and respect for the roles of team members
	5.2 Communicates effectively with the team

Appendix 4

LPT Policy Training Requirements

The purpose of this template is to provide assurance that any training implications have been considered

Training topic:	T34 / BG T Syringe Driver Pump
Type of training:	Role specific
Division(s) to which the training is applicable:	**Community Health Services**
Staff groups who require the training:	All clinicians who may be required to administer drug therapy via the T34 / BG T syringe driver as part of their work with palliative care patients.
Update requirement:	Not formally unless an incident has occurred or a staff member feels they require an update.
Who is responsible for delivery of training?	Clinical Educators within each organisation
Have resources been identified?	Yes
Has a training plan been agreed?	Yes
Where will completion of this training be recorded?	For LPT Ulearn and for other organisations their own learning management system
How is this training going to be monitored?	For LPT - As part of the appraisal process and via Ulearn system administered by the Learning and Development Dept

Process for monitoring Compliance and Effectiveness - LPT

Minimum Required	Self-assessment evidence	Process for Monitoring	Responsible Individual /Group	Frequency of monitoring
Ensure that staff are competent to manage symptoms using the T34 / BG T syringe driver pump (all versions)	Sections 5.7, 6.0	Review of clinicians during annual appraisal	Line Managers	Annual
Review of incidents/ complaints to where a T34 / BG T syringe driver pump has been used.	Section 7.0	Collection of data via Safeguard system. Divisional Patient Safety to review who will manage and feed to Clinical Effectiveness group.	By exception reporting to the Clinical Effectiveness Group	Monthly

Appendix 5

LOROS MEDICAL DEVICE COMPETENCY

Performance Criteria for Assessment Type – Competency

The participant will be able to:

1. Check indications / contraindications for use of the device

2. Explain what the device is to be used for

4. Explain any safety features on the device and the variable for them being there

5. Set the controls on the device correctly

6. Explain how to recognise a malfunction or error from the device and take appropriate action

7. Demonstrate safe practice – ensuring they check both the patient and the device as indicate in the guidelines/policy

8. Explain how to respond to any alarms

9. Discuss any potential problems that may arise from the device as well as any likely/ potential causes of failure

10. State how to monitor and check safe functioning of the device as per manufacturing guidance / LOROS policy

11. State how to recognise when the device has failed

12. Appropriately consult the manufacturers' instructions or LOROS policy or seeks guidance when help is required

13. Demonstrate how to dissemble and reassemble (including accessories) for safe decontamination of the device

14. Outline how to report any concerns relating to the use of the device

15. State how to report any concerns relating to the use of the device

The confirmer signing will have assessed the above named person and can confirm that he/she demonstrates competency in using the named medical device

Appendix 6

LPT Safe Use of a Medical Device Equipment Checklist

Name of Individual:	
Name of Device:	Syringe Driver
Make & Model Number:	T34 2nd ed ( ) T34 3rd ed ( ) BD Bodyguard T ( )

The Purpose of this checklist is to ensure that you understand the intended use of the device in order for it to be used effectively and safely. It is important to highlight that any medical device should be used and maintained in line with the manufacturer's instructions.

Prior to using the medical device that has been identified you are required to undertake the checklist below.

This checklist does not include a declaration that that the individual has achieved a level of competency to undertake a clinical procedure with the piece of equipment. If a level of competency is required, this checklist should accompany the assessment process.

CHECKLIST CRITERIA

I can access the manufacturer's instructions for the piece of equipment	Yes / No / Not applicable
I can state the intended use of the pieces of equipment	Yes / No / Not applicable
I am aware of the limitations for its use	Yes / No / Not applicable
I am aware of how to fit accessories and how they may increase/limit the piece of equipment	Yes / No / Not applicable
I can demonstrate the use of controls appropriately	Yes / No / Not applicable
I am aware of any displays, indicators, alarms etc. and how to respond to them	Yes / No / Not applicable
I am aware of the requirements to maintain the device and cleaning procedures	Yes / No / Not applicable
I can recognise when the device may not be working properly, know how to take it out of use and how to report it.	Yes / No / Not applicable
I have been informed of any pitfalls with using the piece of equipment which include any relevant Trust safety alerts	Yes / No / Not applicable
I know how to perform a visual safety check before each use	Yes / No / Not applicable
Have any addition training requirements been identified, if so please state	Yes / No / Not applicable

Comments:

Individual statement: Having answered "Yes" or "n/a" to all the questions above I understand the intended use of the piece of equipment for it to be used effectively and safely.

Name:		Area of Work:	
Signature:		Date:	

Manager statement: As a manager or nominated person I am satisfied that the individual understands the intended use of the piece of equipment for it to be used effectively and safely.

Name:		Area of Work:	
Signature:		Date:	

To be stored in individuals personnel file. Manager to input into u-Learn training system

Appendix 7

T34 / BG T SYRINGE DRIVER BOX LPT / COMMUNITY CHECKLIST OF EQUIPMENT

Date Checked: Name:

Equipment
1 X Current Syringe Driver Policy
1 x Current Verification and Certification of Death Policy
1 x Copy of the DNA-CPR flowchart taken from the Current DNA-CPR LPT policy
1 X Syringe driver pump that has been serviced within the last 12 months
3 X 9-volt alkaline batteries (6LR61)
1 Protective lockable plastic cover
1 Carry case/box (plastic)
5 x extension set PA-100-V or FSB1597
5 x BD Saf-T-Intima 24g 19mm cannula (383318)
5 x clear 12cm x 2cm semi-permeable dressing
10 x Combi red male and female luer lock bung
10 x BD Blunt fill needles 18g x 1 ½ “
Syringes 5 x 20mls luer lock syringes (Brand to match syringe driver set up) 5 x 30mls luer lock syringes (Brand to match syringe driver set up)
A selection of smaller syringes for drawing up medication 5 x 1ml syringes 5 X 2ml syringes 5 x 5ml syringes
Miscellaneous
20 X Labels yellow
1 X Sharps bin
Authorisation form/s
Controlled drug denaturing/destruction kit
PRN Treatment
5 x Bionectors
5 x clear 5cm x 5cm semi – permeable dressing
A selection of syringes
5 x BD Saf-T-Intima 24g 19mm cannula (383318)

Appendix 8

Diana Children's Community Service On-Call Supplies				
		Item	Suggested amount	Quantity required
Prescription list to GP		Water for injection Solution for IV Injection 10mls (Box of 10)	2	
		Sodium Chloride 0.9% Solution for IV Injection 10mls (Box of 10)	1	
Equipment list to Diana Service	Paperwork	Yellow IV Labels	15	
		Drug Charts	2	
		Stock charts –non- CD's	2	
		Pink CD Cards	5	
	PPE	Non-Sterile Nitrile Gloves: Small		
		Non-Sterile Nitrile Gloves: Medium	200 in box	
		Non-Sterile Nitrile Gloves: Large		
		Gel Hand Sanitizer 70% Alcohol	1	
		Aprons	10	
		FFP3 Masks	4	
		Face visor	2	
		Long sleeve Gown	2	
	Disposal	Large Sharps Bin	1	
		Denaturing Kit	2	
	Clinical Equipment	Soft Drape dressing packs	5	
		Scissors	1	
		Chlorhexidine wipes	10	
		Siltape or mefix	1	
		Red Blunt filter 18 Gauge 1 ½ in (red)	10	
		Blue Needles (safer Sharps)	5	
		Orange Needles (safer Sharps)	5	
		IV Lines with clamp and filter	3	
		White IV bungs	3	
		BD Saf-T-Intima SC cannula's -Yellow	2	
		BD Saf-T-Intima SC cannula's -Blue	2	
		Insuflon bolus needles	2	
		IV 3000 dressings	5	
		1ml Luerlock (CME/BD) IV syringes	10	
		2 or 3 ml Luerlock (CME/BD) IV syringes	10	
		5ml Luerlock (CME/BD) IV syringes	10	
		10ml Luerlock (CME/BD) IV syringes	10	
		20ml Luerlock (CME/BD) IV syringes (Brand to match syringe driver set up)	5	
		30ml syringe (must be BD Plastapak to fit in T34 box and to match syringe driver set up)	5	
		50ml Luerlock (CME/BD) syringes	2	
		Oral 1ml syringes and bung	12	
		Urine sample bottle	1	
	For suction unit	Suction tubing	2	
		Suction pot and filter	2	
		Yanker sucker (small)	2	
		Size 12g Paediatirc with ideal tip	20	
	For nebuliser	Consumables with pot/ tubing	2	
	For Oxygen Saturation Monitor	Oxygen Saturation Probes	2	

Appendix 9

SETTING T34 SYRINGE DRIVER PUMP TIME AND DATE

To enter date and time, do as follows:

1. Press the ▶ key.

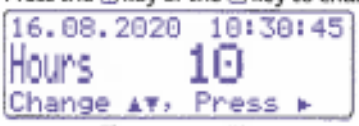
2. Press the ▲ key or the ▼ key to change year, then press the ▶ key.

NOTE: Press the ◀ key to go back to the previous step.

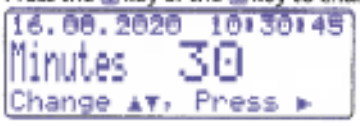
3. Press the ▲ key or the ▼ key to change month, then press the ▶ key.

4. Press the ▲ key or the ▼ key to change date, then press the ▶ key.

5. Press the ▲ key or the ▼ key to change hour, then press the ▶ key.



6. Press the ▲ key or the ▼ key to change minutes, then press the ▶ key.



Appendix 10

PREPARATION FOR SETTING UP T34 SYRINGE DRIVER PUMPS (2ND EDITION, 3RD EDITION AND BD BODYGUARD T)

Wash hands with liquid soap and dry with paper towels. If there are unsuitable washing facilities use alcohol hand sanitiser.
Check that the pump and accessories are clean, visually intact and in working order.
Ensure there is a prescription for the administration of medicines and that it is clear and complete.
Confirm patient identity and consent to treatment.
Confirm previous opioid dose, formulation and frequency. Ensure that the medicines prescribed and doses are clinically appropriate based on the patient's previous requirements (NPSA 2008).
Where more than one drug is prescribed to be administered via an ambulatory syringe pump, the compatibility of drugs should be checked in THE SYRINGE DRIVER Continuous subcutaneous infusions in palliative care (Dickman & Schneider 2016) or the compatibility of drugs chart (Appendix 18). If the drugs prescribed are outside of this or if there are any concerns with regards to the prescribed medication specialist advice should be sought from Palliative Care Specialist Pharmacist.
Check the expiry date of medication and diluents to be used.
Correctly draw up the prescribed medication and diluents and make up to either the standard recommended amount of **17mls in a 20ml** luer lock syringe (CME/BD) or if required **22mls in a 30ml** luer lock syringe (CME/BD) as advocated by CME Medical UK Ltd. For babies and young children, it may be appropriate to reduce the volume in the syringe. Care should be taken to load and prime in this instance as the priming volume may be greater than 5% of the volume infused which may exceed excepted variant in dose as highlighted in Dickman A, Schnider J (2016), Syringe driver: Continuous subcutaneous infusions in palliative care (4th Edition), London: Oxford University Press. When drawing up, take care to distinguish between high (e.g. 30mg) and low strength opioid ampoules (link with NPSA Safer Practice Notice 12)
Attach correctly completed infusion label to the syringe, wrapping label flat around syringe taking care not to obscure the markings (the label must not be folded).
T34 **2nd** Edition: **DO NOT PRIME EXTENSION LINE AT THIS STAGE.** T34 **3rd** Edition & **BD BodyGuard T**: **ATTACH AND PRIME EXTENSION LINE.**

Appendix 11

SETTING UP THE T34 2ND EDITION SYRINGE DRIVER PUMP

(LOAD AND PRIME)

Insert the approved 9v battery (battery code 6LR61) correctly into the device.
Before switching device on ensure barrel clamp arm is down and no syringe in place.
Press and hold down the On / Off key button the device will activate.
Observe pre-loading (automatic actuator movement) and check pump settings on display screens during pre-loading then wait until "**load syringe**" screen displays.
Check battery level by pressing the Info Menu key and Start / OK key buttons wait a few seconds for "**load syringe**" screen to reappear.
It is recommended that **40%** battery power should be remaining when commencing the infusion to be certain that the necessary power is available to complete the 24-hour infusion.
Ensure Barrel Arm Clamp is in the down position. Align syringe to fitting area and use the Move Actuator Back key Move Actuator Forward key buttons to adjust if necessary so that the syringe will fit.
Lift and twist barrel arm clamp and insert syringe into 3 sensor areas.
Return barrel clamp arm to the down position to secure on top of syringe.
Check syringe displayed on screen matches the brand being used (change if necessary using the ▲/▼) press the Start / OK key button to confirm correct brand. If no syringe brand and size displays reload syringe in the sensors.
Once the device has calculated the infusion rate **remove the syringe from the device**.
Place barrel arm clamp into the down position.
Attach the approved extension line/giving set to the loaded syringe.
Manually prime the line by depressing the plunger on the syringe.
Check the solution for clouding or crystallisation. If this occurs do not use and check with the pharmacist regarding compatibility of drugs.
Return syringe to fitting area as above using Move Actuator Forward key buttons to adjust so that the syringe will fit correctly.
Re-load syringe into the device and place barrel clamp arm back into place over syringe barrel.

Check that syringe brand matches syringe displayed on the device screen (change if necessary using the (change if necessary using the ▲/▼) press the Start / OK key button to confirm.
Check the infusion summary screen, the duration & volume in syringe will have decreased however; the hourly rate will remain the same. If correct, press the Start / OK key button to confirm.
Ensure the patients' skin is clean and dry. Insert cannula at an angle between 30 and 45 degrees dependent on patient's condition with bevel pointing down.
Form a loop with the tubing taking care not to cross the cannula tip; cover the whole infusion site and the loop with a sterile 12cm x 12cm film dressing. If appropriate place a small piece of gauze or equivalent under the syphon to prevent pressure damage occurring.
Press the Start / OK key button to start the infusion.
To activate Keypad lock press and hold the Info Menu key button until the graphic fills left to right (OFF to ON) and an audible beep is heard.
Place in clear plastic T34 / BG T lockable box, lock the box and place in a suitable carrying case where available, avoiding exposure to heat and moisture. (Wilcock et al 2022)
Prior to leaving the patient the syringe driver must be checked to ensure that it is running correctly.
Disposal of any sharps into sharps bin and disposal of waste as appropriate to the environment must be carried out accordance with organisational management of waste policy.
Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.
Complete the appropriate documentation on the syringe driver monitoring chart, ensuring all sections are completed (Appendix 19 and Appendix 20**)** and record care carried out on Systm 1.

Appendix 12

SETTING UP THE T34 3RD EDITION & BD BODYGUARD T SYRINGE DRIVER PUMP

(PRIME AND LOAD)

Insert the approved 9v battery (battery code 6LR61) correctly into the device.
Before switching device on ensure barrel clamp arm is down and no syringe in place.
Press and hold down the On / Off key button the device will activate.
Observe pre-loading (automatic actuator movement) and check pump settings on display screens during pre-loading then wait until "**load syringe**" screen displays.
Check battery level by pressing the Info Menu key and Start / OK key buttons wait a few seconds for "**load syringe**" screen to reappear.
It is recommended that **40%** battery power should be remaining when commencing the infusion to be certain that the necessary power is available to complete the 24-hour infusion. For Community staff: change battery every 24 hours to ensure the necessary power is available to complete the 24 hour infusion (agreed by Medical Devices Team)
Ensure Barrel Arm Clamp is in the down position. Align syringe to fitting area and use the Move Actuator Back key Move Actuator Forward key buttons to adjust if necessary so that the syringe will fit.
Lift and twist barrel arm clamp and insert syringe into 3 sensor areas.
Return barrel clamp arm to the down position to secure on top of syringe.
Check syringe displayed on screen matches the brand being used (change if necessary using the ▲/▼) press the Start / OK key button to confirm correct brand. If no syringe brand and size displays reload syringe in the sensors.
The pump will display: • The volume to be infused, press the Start / OK key button to confirm the volume. • The infusion duration, press the Start / OK key button to confirm the infusion duration. • The calculated rate, press the Start / OK key button to confirm the rate.

Review the program summery, if correct, press the Start / OK key button.
Ensure the patients' skin is clean and dry. Insert a new subcutaneous butterfly cannula at an angle between 30 and 45 degrees dependent on patient's condition with bevel pointing down. Attach the prepared extension line (primed), syringe and driver to the cannula.
Form a loop with the tubing taking care not to cross the cannula tip; cover the whole infusion site and the loop with a sterile 12cm x 12cm film dressing. If appropriate place a small piece of gauze or equivalent under the syphon to prevent pressure damage occurring.
Press the Start / OK key button to start the infusion.
To activate Keypad lock press and hold the Info Menu key button until the graphic fills left to right (OFF to ON) and an audible beep is heard.
Place in clear plastic T34 / BG T lockable box, lock the box and place in a suitable carrying case where available, avoiding exposure to heat and moisture. (Wilcock et al 2022)
Prior to leaving the patient the syringe driver must be checked to ensure that it is running correctly.
Disposal of any sharps into sharps bin and disposal of waste as appropriate to the environment must be carried out accordance with organisational management of waste policy.
Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.
Complete the appropriate documentation on the syringe driver monitoring chart, ensuring all sections are completed (Appendix 19 and Appendix 20) and record care carried out on SystmOne.

Appendix 13

MONITORING DURING INFUSION

Regular monitoring includes the following checks:

- All connections between the syringe and the syringe extension set are secure.
- There are no kinks in the syringe extension set.
- There are no signs of physical damage to the pump of the lockbox.
- The keypad lock is on.
- Infusion is in progress.
- Volume history and battery status are expected.

To confirm the infusion progress

- The pump LED light will intermittently flash green.
- The LED screen will display information:
  - ❖ Infusion time remaining
  - ❖ ml/h infusion rate
  - ❖ Alternates between syringe size and brand confirmed and <<<Pump Delivering.

To check volume history and battery level

- Press the Info Menu key button.
- The syringe volume to be infused (VTBI) and volume infused (VI) will be displayed. After a few seconds, this will return to the base display screen.

LOROS staff must adhere to the instructions provided on the LOROS prescription and monitoring form. (Appendix 20)

POWERING OFF

Remove keypad lock and stop the infusion if running by pressing the Stop / No key button.

Press and hold down the On / Off key button until a beep is heard and the pump switches off.

Appendix 14

TEMPORARY INTERRUPTION OF INFUSION (e.g. showering)

Wash hands with liquid soap and dry with paper towels. If there are no suitable washing facilities use alcohol hand sanitiser.
To unlock keypad, press and hold the Info Menu key button down until the black graphic moves from right (ON) to left (OFF). A beep is heard, confirming that the lock has been deactivated.
Press the Stop / No key button. Press and hold the On / Off key button until the black bar moves across the screen and a beep is heard. The screen will go blank.
DO NOT REMOVE THE SYRINGE FROM THE DEVICE.
Disconnect the line from the syringe and cap the end of the line and the syringe tip.
Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.
Document the amount remaining in the syringe and the time the infusion is interrupted for.

RESUMING AN INFUSION FOLLOWING AN INTERRUPTION

Wash hands with liquid soap and dry with paper towels. If there are no suitable washing facilities use alcohol hand sanitiser.
Ensure that the authorisation/drug chart, syringe label and patient details match, to ensure that this is the correct syringe for the patient.
Reconnect the line to the syringe on the device.
Press and hold the On / Off key button until a beep is heard. The syringe will request confirmation of syringe size and brand.
Press the Start / OK key button to resume. The screen will display remaining volume, duration and the rate of infusion.
Press the Start / OK key button to confirm.
Press the Start / OK key button to restart infusion.
To reactivate Keypad lock press and hold Info Menu key button until the graphic fills left to right (OFF to ON) and an audible beep is heard.
Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.

Appendix 15

COMPLETION OF INFUSION AND RELOADING NEW PREPARED SYRINGE

If a drug or dose of drug is changed a new syringe should be prepared and a new extension line attached Follow steps from Appendix 9 or 10 depending on the T34 / BG T syringe driver edition/version.
To unlock keypad, press and hold the Info Menu key button down until the black graphic moves from right (ON) to left (OFF). A beep is heard, confirming that the lock has been deactivated.
Press the Stop / No key button. Press and hold the On / Off key button until the black bar moves across the screen and a beep is heard. The screen will go blank.
Remove device from locked plastic box or equivalent.
Remove completed syringe from device (the device MUST be switched off before removing syringe).
Before you switch device back on ensure barrel clamp arm is down and no syringe is in place.
Press and hold down the On / Off key button the device will activate.
Observe pre-loading (automatic actuator movement) and check pump settings on display screens during pre-loading then wait until “load syringe” screen displays.
Check battery level by pressing Info Menu key button then the Start / OK key button and wait a few seconds for “load syringe” screen to reappear.
It is recommended that a **>40% battery** is used for all versions of T34 / BG T syringe driver pumps.
Align filled syringe to fitting area and use Move Actuator Forward key buttons to adjust if necessary so that the syringe will fit.
Lift and twist barrel arm clamp and insert syringe into 3 sensor areas.
Return barrel clamp arm to the down position to secure on top of syringe.
Check syringe displayed on screen matches the brand being used (change if necessary using the ▲+/▼-), press the Start / OK key button to confirm correct brand. If no syringe brand and size displays readjust syringe in the sensors.
Check the solution for clouding or crystallisation. If this occurs do not use and check with the pharmacist.

Disconnect completed syringe from line and discard in accordance with organisational policy.
Attach line to prepared syringe.
Check the infusion summary screen, if correct, Press the Start / OK key button to confirm.
Press the Start / OK key button to start infusion.
To reactivate Keypad lock press and hold the Info Menu key button until the graphic fills left to right (OFF to ON) and an audible beep is heard.
The syringe driver should be placed securely near to the patient in the clear plastic locked box and carrying case where available, avoiding exposure to heat and moisture. (Wilcock et al 2022)
Prior to leaving the patient the syringe driver must be checked to ensure that it is running correctly.
Disposal of any sharps into sharps bin and disposal of waste as appropriate to the environment must be carried out accordance with organisational management of waste policy.
Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.
Complete the appropriate documentation on the syringe driver monitoring chart, ensuring all sections are completed (Appendix 19 and Appendix 20) and record care carried out on SystmOne.

Appendix 16

STOPPING INFUSION AND REMOVING THE T34 (2ND OR 3RD EDITION & BD BODYGUARD T) SYRINGE DRIVER PUMP

Wash hands with liquid soap and dry with paper towels. If there are no suitable washing facilities use alcohol hand sanitiser.
When the infusion is complete and the syringe is empty, it will stop automatically and the alarm will sound.
To unlock keypad, press and hold the Info Menu key button down until the black graphic moves from right (ON) to left (OFF). A beep is heard, confirming that the lock has been deactivated.
Press the Stop / No key button. If the device is no longer required for the patient, press and hold the On / Off key button until the black bar moves across the screen and a beep is heard. The screen will go blank.
Remove device from locked plastic box.
Remove completed syringe from device (the device MUST be switched off before removing syringe).
Immediately remove the line from the patient.
Retain the battery in the device.
Clean and decontaminate medical device in accordance with organisational policy and return to designated storage area. If a syringe driver is discontinued and medicines, including controlled drugs, remain in the syringe and line, the unused contents must be denatured and disposed of according to local policy. The empty syringe should then be put into the sharps bin.
Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.
Complete all appropriate organisational documentation.

Appendix 17

WHEN PATIENT DIES WITH A T34 / BG T SYRINGE DRIVER PUMP IN SITU

Wash hands with liquid soap and dry with paper towels. If there are no suitable washing facilities use alcohol hand sanitiser.
Press the Info Menu key button and document the amount of solution remaining to be infused in the syringe (VTBI).
To unlock keypad, press and hold the Info Menu key button down until the black graphic moves from right (ON) to left (OFF). A beep is heard, confirming that the lock has been deactivated.
Press the Stop / No key button to stop the infusion.
If there are any concerns about the circumstances of the death, or the death is unexpected leave the syringe driver in place and contact your 'duty manager' or equivalent for advice. In cases of an expected death or where verification and/or certification of death have been completed by a qualified healthcare professional it is acceptable to remove the device and line from the patient.
Remove device from locked plastic box.
Remove the syringe from the syringe driver and destroy the contents in accordance with organisational policy.
Remove the cannula from the patient. Cover cannula site with a clean dressing if required.
Retain the battery in the device.
Clean and decontaminate medical device in accordance with organisational policy and return to designated storage area. If a syringe driver is discontinued and medicines, including controlled drugs, remain in the syringe and line, the unused contents must be denatured and disposed of according to local policy. The empty syringe should then be put into sharps bin.
Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.
Complete all appropriate organisational documentation.

Appendix 18

TROUBLE SHOOTING

T34 2ND Edition Syringe Driver Pump Alarms

When the pump 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 following reasons:

LCD Display	Alarm type	Possible cause	Action
Occlusion	Audible and visual alarm	Patient cannula / line blocked, kinked. Occlusion	Press YES to silence alarm Remove occlusion and restart If two occlusions occur change cannula as per policy
Syringe Empty	Audible and visual alarm	Infusion has finished	End of program, switch pump off
Syringe Displaced	Audible and visual alarm Intermittent beep – the alarm is insistent	Syringe has been removed or displaced	Check and confirm syringe is seated correctly and resume infusion. The collar of the syringe should remain vertical at all times.
Pump paused too long	Audible and visual alarm Intermittent beep	Pump left or no key presses detected for 2 minutes	Start infusion, continue programming or switch off
Near end	Audible and visual alarm Intermittent beep 3 beeps/3 mins silence	15 minutes from end of infusion	Prepare to change syringe or switch off
End program	Audible and visual alarm Intermittent beep	Infusion complete	Pump will alarm. Press YES to confirm end of program and OFF to switch pump off

T34 3rd Edition & BD BodyGuard T Syringe Driver Pump Alarms

When the syringe driver pump detects a problem, four things may occur:

1. If a HIGH priority alarm occurs, infusion will stop. For lower priority alarms, infusion continues
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/YELLOW.

The alarm will sound for the following reasons:

LCD Display	Alarm Type	Possible Cause	Action
Occlusion	Audible and visual alarm	Patient cannula/line blocked, kinked Occlusion	Press YES to silence alarm Remove occlusion and restart If two occlusions occur change cannula as per policy
Syringe Empty	Audible and visual alarm	Infusion has finished	End of program, switch pump off
Syringe Displaced	Audible visual alarm Intermittent beep – the alarm is insistent	Syringe has been removed or displaced	Check and confirm syringe is seated correctly and resume infusion The collar of the syringe should remain vertical at all times
Pump paused too long	Audible and visual alarm intermittent beep	Pump left or no key presses detected for 2 minutes	Start infusion, continue programming or switch off
Near end	Audible and visual alarm intermittent beep 3 beeps/3 mins silence	15 minutes from end of infusion	Prepare to change syringe or switch off
End program	Audible and visual alarm intermittent beep	Infusion complete	Pump will alarm. Press YES to confirm end of program and OFF to switch pump off
Low battery	Audible and visual alarm 2 beeps 3 mins silence	Battery is almost depleted (30 minutes left)	Prepare to change battery and resume infusion
End battery	Audible and visual alarm	Battery is depleted	Change battery and resume infusion

- If the infusion is running too fast (i.e. running more than 1 hour ahead of expected time); Change the entire T34 syringe driver pump for a new one and send the original device for servicing.

- If the infusion is running too slow (i.e. running more than 1 hour behind the

expected time); Check the infusion light is status indicator is green and flashing.

- Check the battery level.

- Check the syringe is inserted correctly onto the device.

- Ascertain if the device has been stopped and restarted 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 or 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 hypoallergenic cannula.

If all attempts fail, change the entire T34 syringe driver for a new one and send the original device for servicing.

Appendix 19

Commonly Used Drugs for use in a Syringe Driver in Palliative Care (Adults only)

Drug (ampoule size)	Indication	Compatibility	Usual Dose (24hour)
Alfentanil (500µg/mL 2mL and 10mL amps.)	Pain in patients with renal failure	With most drugs	Variable depending on total intake of morphine Conversion of SC diamorphine to SC alfentanil = 10:1
Cyclizine, (50mg/1mL)	Nausea and vomiting associated with motion sickness; Anticipatory nausea; Pharyngeal stimulation Mechanical bowel obstruction Raised intracranial pressure	Can precipitate with dexamethasone, diamorphine (in higher doses) metoclopramide. Incompatibility with ondansetron and oxycodone	50-150mg usual dose
Dexamethasone (3.3mg/mL)	Antiemetic Pain relief Raised intracranial pressure, Spinal cord compression, Intestinal obstruction	Mixes with metoclopramide Precipitates with cyclizine, midazolam, haloperidol, levomepromazine Advisable to put in separate driver, but can mix with diamorphine	3.3-13.2mg usual dose, 0.5-1mg may be added to reduce site reactions without risk of incompatibility. Long half-life so can be given as SC bolus. once/twice daily
Diamorphine (5mg, 10mg, 30mg, 100mg, 500mg)	Pain, Diarrhoea, Cough, Dyspnoea	With most drugs. High doses incompatible with cyclizine and 0.9% NaCl	Variable depending on total oral intake of morphine. Conversion of oral morphine to subcutaneous diamorphine is 3:1

Glycopyrronium bromide, **(200µg/mL 1mL, 3mL amps.)**	Death rattle, Colic in inoperable bowel obstruction, Does not cross the blood brain barrier so does not cause drowsiness.	With most drugs	0.6mg-1.2mg usual dose
Haloperidol, **(5mg/1mL)**	Nausea & vomiting, Psychotic symptoms, Agitated delirium, Intractable hiccup	With most drugs	500mcg - 10mg usual dose (Higher doses used in psychosis)
Hyoscine butylbromide, **(20mg/1mL)**	Intestinal obstruction, crampy abdominal pain, Death rattle	With most drugs except cyclizine (concentration dependent)	Bowel obstruction with colic: 60-120mg. Death rattle 20-60mg, Higher doses may be used
Hyoscine hydrobromide (400µg/mL)	Death rattle, Colic, Reduce salivation, Some antiemetic action	With most drugs	1.2mg – 1.6mg
Levomepromazine (25mg/1mL)	Nausea & vomiting, Insomnia, Terminal agitation Intractable pain, Useful as antiemetic and sedation, can be very sedating	Precipitates with higher doses of dexamethasone, Do not use with cyclizine	5-25mg usual dose for nausea & vomiting, 50--200mg usual dose for terminal agitation
Metoclopramide, **(10mg/2mL)**	Nausea and vomiting, Delayed gastric emptying, Obstructive bowel symptoms without colic.	With most drugs	30-100mg
Midazolam, **(10mg/2mL)**	Sedation for terminal agitation, Multifocal myoclonus, Epilepsy, Intractable hiccup, Muscle spasm	With most drugs. Incompatible with dexamethasone	10-60mg usual dose
Morphine **(10mg/mL, 30mg/mL)**	Pain, breathlessness, cough	With most drugs	Variable depending on total oral intake. Conversion oral morphine to SC morphine 2:1
Octreotide	Intestinal obstruction associated with vomiting, Intractable diarrhoea,	Possible incompatibility with dexamethasone or levomepromazine	Intestinal obstruction: 250-750µg usual dose

(50µg/mL 100µg/mL 200µg/mL 500µg/mL)	Symptoms associated with hormone secreting tumours, Bowel fistulae.		
Oxycodone **(10mg/mL 20mg/mL 50mg/mL)**	Pain	Can precipitate with cyclizine at higher doses	Variable depending on total oral dose Conversion oral Oxycodone to SC Oxycodone 2:1
Parecoxib **(40mg ampoule)**	Pain - especially in presence of inflammation	Incompatible. Give with separate CSCI use sodium chloride 0.9%	40 - 80mg Long half-life so can be given as SC bolus. once/twice daily
Phenobarbital **(200mg/mL)**	Seizures, refractory terminal restlessness	Incompatible. Give with separate CSCI Irritant, dilute well	200 - 800mg Higher doses may be used

Wilcock A. Howard P. Charlesworth S. (2022) Palliative Care Formulary 8th Edition Palliativedrugs.com

Guidance for children under the age of 18 years, please refer to the APPM Master Formulary link - **APPM Master Formulary**
https://www.appm.org.uk/guidelines-resources/appm-master-formulary/

Appendix 20

Diana End of Life Care – Equipment Record						
Name:			D.O.B		Address:	
Equipment	Tick		Item Code	Exp /service date	Date taken	Additional Information
BD/CME T34 syringe driver pump x2		**All In T34 Red Bag**				**Clean with Clinnel wipes**
Clear plastic lock box for syringe driver pump x2						**Clean with Clinnel wipes**
Syringe driver pump pouch (single patient use) x2			**Bag No.**			**Only return if still in double sealed bag - remove outer bag before returning to office. Re-bag and label once back in office**
Patterned Fabric pouches (single patient use) x2						**Only return disposables if still in double sealed bag - remove outer bag before returning to office. Re-bag and label once back in office**
Batteries 6LR61 (x 10)						
Syringe driver Information for Parents						
Syringe Driver Operational Manual						
Anticipatory meds boxes x2						
Black Drug Boxes And 1 padlock			**Box No.**			**Clean with Clinnel wipes**
Denaturing kits x 3 and white storage box with key			**Box No.**			**Denaturing kits are signal use only therefore should be filled with water as indicated straight after inserting the CD medication. Please leave in storage box for 24 hours to solidify. They then can be returned to a pharmacy. See information within Equipment Box. Return box to office and Clean with Clinnel wipes**
Pariboys Junior Nebulizer and disposables						**Clean with Ani-Cloth70 wipes. Only return disposables if still in double sealed bag- remove outer bag before returning to office. Re-bag and label once back in office**
End of Life main Equipment box (See list of contents inside box)			**Box No.**			**Within box double sealed can be returned if unopened. If box not used clean outer with Clinnel wipes and reseal. All other equipment should be left with the family for disposal.**
baby Monitor – identify type						**Clean with Clinnel wipes**
Oxygen Saturation Monitor (Probes in Main End of Life Equipment box)						

Equipment		Item Code	Exp date/ service date	Date taken	Additional Information
Suction Unit (with all disposable attachments)					
Spare set of disposable attachments for suction machine					
Repose Babytherm mattress					**Can be cleaned using Clinnel wipes if used by family. Clean and re-bag and label once back in office. Leave message for Diana Administration Equipment Lead reorder via NRS if required.**
Repose cushion					**Diana Service has a supply in office. Please ensure cleaned using Clinnel wipes if used by family. Clean and re-bag and label once back in office. These cushions are currently not available for reorder via NRS.**
Male urinal – FWV 051 £2.18 each total					**Can be returned to office if unused and still in double sealed bag - remove outer bag before returning to office. Can be cleaned using Clinnel wipes if used by family. Clean and re-bag and label once back in office. Leave message for Diana Administration Equipment Lead reorder via NRS if required.**
Bedpan – FSE 018 - £8.44 each total					
Bed ban inserts					
Vomit Bowls					
Gloves					
Aprons					
Hand sanitiser					
Sharps Bin					
Incontinence pads					**Incontinence pads to be ordered via FYPC Continence Lead**
Trolleys (to carry equipment)					**Clean with Clinnel wipes**
New Life Equipment (list if ordered) **1.** **2.** **3.**					**Call Newlife to collect when no longer required: 01543431440**

Appendix 21

Compatibility chart for two drugs in Water for Injections over 24 hours for Palliative Care Use

Compatibilities checked via Palliativedrugs.com (SDSD) on 15/12/20

Other factors, which may not be specified, may also affect drug stability and compatibility and these may explain conflicting outcomes and reports. These include the brand/formulation/strength of the drug(s) used, temperature (ambient or body temperature), light exposure, order of mixing and delivery system material. Thus, *regular close monitoring of all CSCI drug combinations is essential*.

Glycopyrronium	ND							ND	ND
Haloperidol								ND	Use NaCl 0.9% diluent only
Hyoscine Butylbromide	Incompatible with cyclizine >50	N A N D	Use NaCl 0.9% diluent only					Use NaCl 0.9% diluent only	
Levomepromazine	NA But if using is compatible		NA					Use NaCl 0.9% diluent only	
Metoclopramide	NA but if using not compatible			NA				ND	Use NaCl 0.9% diluent only
Midazolam									ND
Morphine Sulfate					Use NaCl 0.9% at higher doses of morphine			Use NaCl 0.9% diluent only	
Oxycodone	Incompatible with doses of oxycodone >150mg							Use NaCl 0.9% diluent only	
	Cyclizine	Glycopyrronium	Haloperidol	Hyoscine Butylbromide	Levomepromazine	Metoclopramide	Midazolam	Levetiracetam	Ondansetron

Appendix 22

LPT SYRINGE DRIVER CHECKLIST – Syringe Driver Pump (T34 2nd, T34 3rd, BD BodyGuard T) (use one sheet per Syringe Driver)

Patients Full Name: Date of birth: NHS Number:

Identify total number of syringe drivers in use (i.e. 1 of 1 or 1 of 2)_Serial number: Service/Production Date:

Rt = Right **Lt = Left** **CW = Chest Wall** **Abdo = Abdomen** **ml = Millilitres** **mm = Millimetres**						
	Date: Time:	Date: Time:	Date: Time:	Date: Time:	Date: Time:	Date: Time:
Start Volume and duration on commencing/replenishing						
Location of needle site						
Butterfly Batch Number(when changed/commenced)						
Size of syringe used (ml)						
Remaining Volume to be infused (VTBI) and Volume infused (VI) Press the **INFO** key once for this information						
Battery Life remaining as % Press the **INFO** key twice for this information						

If you have ticked ”yes” to any questions below in the shaded cells; document action taken on evaluation sheet in patient health records												
Please tick yes or no	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Kinks/blocks in line?												
Battery changed?												
Redness, pain, swelling or leakage at needle site?												
Re-sited?												
GP Contacted												
If you have ticked “no” to any questions below in the shaded cells; document action taken on evaluation sheet in patient health records												
Please tick yes or no	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Are symptoms controlled?												
Is solution clear in syringe?												
Syringe correctly inserted into pump?												
Is the indicator light flashing green?												
Is the display screen showing “pump delivering”?												
Is the amount left in the syringe correct for the time allowed?												
Is the key pad locked?												
PRINT NAME												
SIGNATURE												
DESIGNATION												

Appendix 23

LOROS SYRINGE DRIVER CHECKLIST – Syringe Driver Pump (T34 2nd, T34 3rd, BD BodyGuard T)
(Use one sheet per Syringe Driver)

LOROS 24 HOUR SYRINGE DRIVER CHECKING CHART								
NAME				STABILITY CHECK CODE			TEAM	
				1) SYRINGE DRIVER BOOK			CONSULTANT	
ADDRESS				2) PALLIATIVE CARE GUIDEL			SENSITIVITIES/	
				3) MEDICINES INFORMATIO			ALLERGIES	
NHS NUMBER				4) OTHER				
DATE OF BIRTH				**NUMBER OF SYRINGE DRIVERS**				
SYRINGE DRIVER NUMBER								
DATE								
STABILITY CHECK								
TIME STARTED								
DILUENT								
VOLUME / SYRINGE SIZE								
INFUSION RATE ml / hr								
BATTERY STATUS								
KEYPAD LOCKED **Y / N**								
SET UP BY (Initial)								
	SITE APPEARANCE OK **Y/N**							
1pm	VOLUME TO BE INFUSED (ml)							
	VOLUME INFUSED (ml)							
	SIGNATURE (initial)							
	SITE APPEARANCE OK **Y/N**							
5pm	VOLUME TO BE INFUSED (ml)							
	VOLUME INFUSED (ml)							
	SIGNATURE (initial)							
	SITE APPEARANCE OK **Y/N**							
21:00	VOLUME TO BE INFUSED (ml)							
	VOLUME INFUSED (ml)							
	SIGNATURE (initial)							
	SITE APPEARANCE OK **Y/N**							
Over - Night	VOLUME TO BE INFUSED (ml)							
	VOLUME INFUSED (ml)							
	SIGNATURE (initial)							
	SITE APPEARANCE OK **Y/N**							
9am	VOLUME TO BE INFUSED (ml)							
	VOLUME INFUSED (ml)							
	SIGNATURE (initial)							
DATE AND TIME OF RESITE								
VOLUME DESTRUCTED (mls)								
REASON FOR DESTRUCTION **RIP**		**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**
REASON FOR DESTRUCTION **DRIVER CHANGE**		**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**
SIGNATURE (initial)								
MEDICATIONS PRESCRIBED								

Appendix 24

LPT Due Regard Screening Template

Section 1	
Name of activity/proposal	Management of symptoms through the use of drugs
Date Screening commenced	22.09.17
Directorate / Service carrying out the assessment	CCHS
Role of person undertaking this Due Regard (Equality Analysis)	Clinical Education Lead
Give an overview of the aims, objectives and purpose of the proposal:	
AIMS: Updating of the policy that prescribes the standards for using and managing a T34 / BG T syringe driver in the clinical setting.	
OBJECTIVES: To ensure that any staff who manage patients' symptoms using a T34 / BG T syringe driver are able to do so safely and manage the device in a standardised manner.	

Section 2	
Protected Characteristic	**If the proposal/s have a positive or negative impact please give brief details**
Age	No impact
Disability	No impact
Gender reassignment	No impact
Marriage & Civil Partnership	No impact
Pregnancy & Maternity	No impact
Race	No impact
Religion and Belief	No impact
Sex	No impact
Sexual Orientation	No impact
Other equality groups?	No impact

Section 3			
Does this activity propose major changes in terms of scale or significance for LPT? For example, is there a clear indication that, although the proposal is minor it is likely to have a major affect for people from an equality group/s? Please <u>tick</u> appropriate box below.			
Yes		No	
High risk: Complete a full EIA starting click here to proceed to Part B		Low risk: Go to Section 4.	✓

Section 4			
If this proposal is low risk please give evidence or justification for how you reached this decision:			
This intervention is used to manage symptoms with patients consent or as a best interest decision when a patient does not have capacity due to disease progression.			
Signed by reviewer/assessor	D. Leeson	**Date**	19.10.17
Sign off that this proposal is low risk and does not require a full Equality Analysis			
Head of Service Signed		**Date**	