



Treetops
Hospice

Syringe driver guide

This guide has been designed by Treetops Hospice to complement the syringe driver training given within South Derbyshire. It is intended to be used by Nursing home staff within Derbyshire who have completed the training provided by Treetops.

It is a requirement that the reader follows this and accepts professional accountability and maintains the standards of professional practice as set by the appropriate regulatory body applicable to their professional role and to act in accordance with the express and implied terms of your contract of employment.

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1. Definitions

The T34 and Bodyguard Syringe Drivers are medical devices, which are small portable, battery-operated infusion pumps. They are used to deliver medication via the subcutaneous route over a calculated period providing a continuous level of medication.

2. Communication

Once the need for a syringe driver has been identified, check staff have appropriate training and are competent to set up. If you do not feel confident, please seek support via services suggested within this document.

Good communication is essential with the resident and their families to ensure they understand why a syringe driver is needed to better manage their symptoms. Explain what a syringe driver is and answer any concerns they may have.

3. Getting the directive and medication

Ensure you communicate in a timely fashion with the residents GP or appropriate clinician. The clinician will send the prescription for medication to the local community pharmacy or a pharmacy off the allocated list of stockists. An updated list of stockists can be found on the Derbyshire End-of-Life care toolkit [Community Pharmacies participating in the Palliative Care/EOL stockist service | Resources | Derbyshire Alliance for End of Life Care \(eolcare.uk\)](#). Communicate with the community pharmacy to check they have sufficient stock. Consider medication for the syringe driver as well as anticipatory medication. **Is there a contingency plan in place for the care home? Can a member of staff collect the medication if the pharmacy cannot deliver in time?**

- **Remember to reassess your resident's symptom control over 24hours. Have they needed additional anticipatory medication? If so, then discuss with the prescribing clinician to review the syringe driver dose.**
- **Remember to ensure that a new directive is written if any doses are changed.**

4. Checking your syringe driver

Before use ensure the syringe driver has been serviced and calibrated within the last year. This can be identified by a sticker placed on the pump. The pump will also show on the main screen if it needs to be serviced. If the message [send for service] shows, please **DO NOT** use the pump. See below for information re loaning a syringe driver.

5. Loaning a syringe driver

Nursing homes are encouraged to purchase their own Syringe Drivers however, if the home doesn't have their own, they can loan a pump from Medequip. Pumps can be collected from the Alfreton or Derby city depot. Contact Medequip directly to arrange this (see attached loan information). Be aware of opening times and plan your loans around these. For example, if you anticipate a syringe driver will be needed over the weekend order on a Friday to avoid delays.

Plan and order a pump ahead of time if you anticipate that one will be needed. *Note that when the syringe driver it loaned it will come with the pump, a lockable case, and a key. Nursing homes are required to purchase a stock of consumables needed to administer anticipatory medications and commence a syringe driver. **A list of suggested consumables is attached at the bottom of this document.**

6. Inserting a subcutaneous cannula. *A separate cannula must be used to administer anticipatory medications and medication via a syringe driver.

Insertion of SAF-T-Intima cannula.

This will be attached to the syringe driver pump via an appropriate extension set as follows.

- Confirm identity of the patient.
- Explain the proposed procedure to the patient and/or family to gain informed consent.
- Clean and wash hands with liquid soap and dry with paper towels
Prepare equipment.
- Prep skin in accordance with the organisations infection prevention and control policy.
- Rotate opaque safety sheath to loosen the needle.
- Grasp ridged side wings of the cannula between thumb and index finger, ensure that the dots are facing down to the skin. Remove needle sheath from Saf-T-Intima cannula, making sure the bevel is facing upwards.
- Pinch skin up into a fold between thumb and forefinger and insert the cannula at a 30–45-degree angle.
- Secure the insertion site using a Tegaderm IV cannula dressing and label said dressing.
- Hold the wings of the cannula firmly and remove the introducer by pulling back in a single smooth movement.
- Dispose of Sharp directly into sharps container.

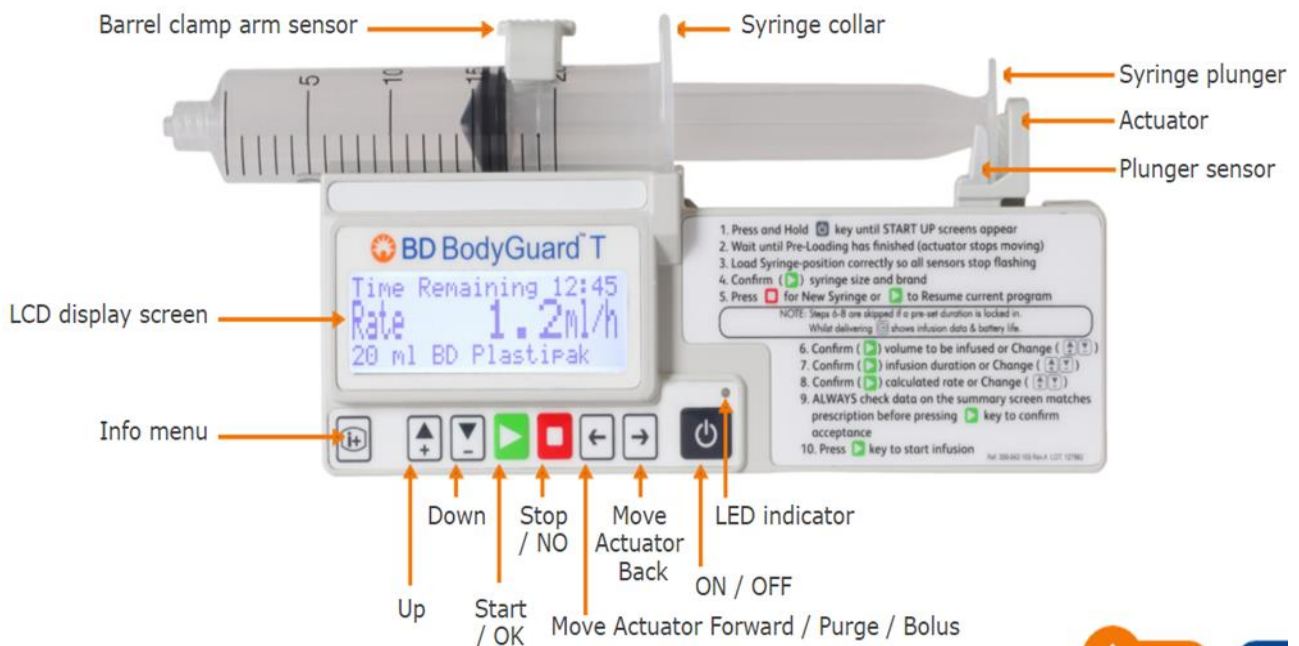
7. Preparing the syringe for the syringe driver

1. Ensure you have a syringe driver prescription sheet which is clear and signed by a prescriber. Copies of these can be printed from the Derbyshire Alliance End of life toolkit.
[1058 Palliative Care Syringe Driver Prescription Information Sheet Patients aged 18 years and over.docx \(live.com\)](#) Ensure all the details are correct if you have any concerns or queries, please contact the prescribing clinician to amend this prior to preparing the syringe.
 - The prescription sheet will clearly instruct which medication is to go into the resident's syringe driver.
 - Ensure the diluent and total volume is clearly prescribed.
 - Check the medication is compatible by referring to the compatibility guide, this will state the diluent and total volume required. The compatibility guide can be found at [Palliative-Care-Syringe-driver-compatibility-v7.1-final-Aug-2020-CRH-DCHS.pdf \(eolcare.uk\)](#).
 - If you need further guidance/reassurance regarding compatibilities, please contact your GP/ appropriate clinician, the Community Palliative Care Team, or your community pharmacist.
2. Wash your hands thoroughly and put on a clean apron and gloves. Ensure the area you are preparing the syringe in is clean, clutter free and free of distractions. Gather the consumables required. Check out the medication prescribed from the CD cupboard with your second checker. **Keep referring to your syringe driver prescription sheet for the correct medication prescribed.**
3. Gather your equipment as per the consumables list attached. Draw up the medication as prescribed. If you need to draw up small amounts from the medication ampoule, use a smaller syringe to accurately measure. Ensure a clean filter needle is used when breaking glass ampoules, it is good practice to use a clean needle with each medication. Make room in the large BD Plastipak syringe by drawing back the plunger. Transfer the medication from your smaller syringe to your large syringe by placing a clean filter needle on to the syringe, insert this through the luer lock end and gently push the medication in. ***(Note that Derbyshire guidance recommends using BD Plastipak luer lock syringes, refer to your compatibility guide for guidance on the size required).**
4. Once the medication has been transferred into the large syringe, gently push the plunger to bring the medication to the top. It is now time to add the diluent. This needs to be done slowly to get as close to the final volume without needing to expel any of the contents. ***(If the total volume is exceeded DO NOT expel**

any of the contents. This will waste medication and the wrong dose will be administered, instead you will need to prepare a new syringe).

5. Attach the 100cm infusion line to the prepared syringe. Ensure that the luer lock is fully screwed on to the thread of the syringe tip. Gently push the medication through to prime the line. **(Be careful not to expel any medication from the line as this will reduce the volume and the medication will not be administered as prescribed).**
6. Refer to the prescription sheet to check the correct medication/dose has been prepared. Document any batch and expiry numbers. Discard any sharps into a sharps container as per policy.
7. The syringe is now ready to be loaded into the syringe driver. The quick user guide can be found on the Derbyshire End-of-Life care toolkit [BD BodyGuard T Syringe Pump LOCK ON DURATION Quick Reference Guide | Resources | Derbyshire Alliance for End of Life Care \(eolcare.uk\)](#)

8.Loading the syringe into the pump (Prime and Load)



Insert the battery correctly into the device. **This must be a Duracell Plus battery.** Refer to the user guide for battery guidance if unsure. This has been tested with device. It is recommended that a NEW battery is used when commencing the infusion to be certain that the necessary power is available.

- Before switching the device on ensure barrel clamp arm is down and no syringe in place.
- Press and hold down the on/off button, the device will activate, and screen will illuminate.
- Observe pre-loading (automatic actuator movement) and check pump settings on display screens during pre-loading **then wait until** "load syringe" screen displays.
- Ensure Barrel Arm Clamp is in the down position. Align syringe to fitting area and use the arrow buttons to adjust, if necessary, (See above image for where these are located) so that the syringe will fit. Insert the syringe into the pump as shown in the above diagram. By lifting and twisting the barrel arm.
- Once the syringe is in place return barrel clamp arm to the down position to secure on top of syringe.

- Check syringe displayed on screen matches the brand being used press the green button to confirm correct brand. This can be changed if needed by using the “**up**” and “**down**” arrows on the pump.
- If no syringe brand and size displays reload syringe in the sensors. If the correct syringe is still not displayed do not use the pump.
- The program summary will be displayed, volume, duration, rate. * do not be alarmed if the volume in the syringe is not close to your total volume if you have primed the line. The medication will have been used to prime the line.
- Attach the line to the Saf-T-intima. Ensure that a separate cannula is used to administer anticipatory medications.
- Press the green button to start the infusion.
- To activate Keypad lock press and hold the **i+** button until the graphic fills left to right (OFF to ON) and an audible beep is heard.
- Place in lock box. Lock the box and remove the key. Protect the syringe driver from sunlight and moisture.
- Disposal of any sharps into sharps bin and disposal of waste as appropriate to the environment must be carried out in accordance with organisational management of waste policy.
- Wash hands with liquid soap and dry with paper towels or use alcohol hand sanitiser.

9.Documentation

Administration/Stock Balance sheet to be filled in by a trained nurse.

- 1 sheet per drug strength. Eg Midazolam 10mg/2ml on one sheet
Midazolam 5mg/5ml on a separate sheet
- A single sheet will cover the stock balance for the anticipatory medications and the syringe driver medications.
- Ensure the residents details are on the stock balance sheet.
- Complete each time new stock is received.
- Ensure the date, time, strength, amount given, amount destroyed if appropriate stock balance and signature are documented.

Infusion chart

- Before leaving the resident make sure the keypad lock is on. Return within the next hour to ensure that the syringe driver is running correctly and then 4 hourly checks after that. Use the infusion chart to record these checks. Infusion charts can be found here.

[0402 - Syringe Pump Checking Chart.docx \(live.com\)](#)

Syringe driver label

- Ensure that a label is placed on the syringe stating the following:
 - i) The residents name, date of birth and NHS number.
 - ii) The date and time the syringe was prepared.
 - iii) Signature of the preparer and second checker.
 - iv) The contents of the syringe e.g.
 - Morphine sulphate 10mgs
 - Midazolam 10mgs
 - Made up to a total volume of 18mls water for injection.

Line label

This is a label that can be placed on the infusion line. The infusion line can be used for up to 72 hours if the dose in the syringe doesn't change. It is good practice to use a line label to ensure all staff know when it needs to be changed and what is infusing through it.

10.Changing the battery in the middle of an infusion:

As a nurse is available 24/7 and as long as the syringe driver is monitored closely batteries can run down to 10-15% before needing to be changed.

- Make a note of rate ml/hr, volume to be infused and volume left to be infused and duration left.
- Stop the syringe pump.
- Deactivate keypad lock and turn the syringe pump off.
- Do not remove the syringe from the pump.
- Take out old battery and replace with new. Dispose of old battery as per local waste policy.
- Turn the pump on and 'Load syringe' screen will briefly appear, replaced by screen to check syringe brand. Check syringe displayed on screen matches the brand being used, press the green button to confirm correct brand.
- New screen will appear asking 'Yes to resume or No for new syringe' press **Yes**. ***If no is pressed the pump will recalculate the remaining volume as a new programme. This is a drug error. A new syringe will need to be made**
- Now the program summary should be displayed, volume, duration, rate. Review the program summary, if correct, press the green button to confirm.
- Start infusion screen will appear, press green button.
- Lock screen by pressing blue or **i+** key.
- Replace back in locked box.

11. When the pump is no longer required:

- Stop the infusion – note how many millimetres remain in the syringe and that this corresponds with the syringe infusion summary.
- Press and hold the info key, **i+** to deactivate the keypad lock facility.
- Switch off the pump.
- Do not remove from the resident until verification of death has been completed by someone who is trained.
- After this dispose of any medication as per your policy.
- Return the pump to Medequip if it has been loaned.

12. 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. Red means that the medication is not infusing, yellow means that the medication is still infusing.

CD Display	Alarm Type	Possible Cause	Action
Occlusion or Syringe Empty	Audible and visual alarm	Patient cannula/line blocked, kinked Occlusion Infusion has finished	Press YES to silence alarm Remove occlusion and restart. If two occlusions occur change cannula as per SOP 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
Program nearly complete	Audible and visual alert intermittent beep 3 beeps/3 mins silence	15 minutes from end of infusion	Prepare to change syringe or switch off

13.Suggested syringe driver consumables stock

Key

Can be prescribed – needs to be individual for each resident

- **1 x syringe driver pump +cover+ key to unlock driver.**
- **10 x batteries (Duracell plus 9v batteries).**
- **25 x Saf-T Intima (BD Saf-T-Intima safety system cannula).**
- **20 x lines (extension set (line) 100cm length).**
- **5 x 30ml syringes (BD Platipak 30ml syringes luer lock) 20x 20ml syringes (BD Plastipak 20ml syringes luer lock).** This provides sufficient dilution to reduce the risk of adverse site reactions and incompatibility, without providing too large a volume for comfortable administration. If the medications total is greater than 10ml before dilution, it may be necessary to use a 30ml syringe and dilute further.
- **20 x 3 ml syringes (for drawing up small amounts of medication).**
- **5 x 5ml syringes (for drawing up small amounts of medication).**
- **20 x 1ml syringes (for drawing up small amounts of medication).**
- **As needed x film dressings for securing the cannula.**
- **50 x red needles Sol M Blunt needles 18g.**
- **Braun Combi-stoppers.**
- **Sharps bin.**

14. What other resources are available to us?

Who	When	How
Derbyshire EOL Alliance toolkit	At any time	https://derbyshire.eolcare.uk/
Compatibility guide	To check drug compatibilities and appropriate mixing volumes	https://derbyshire.eolcare.uk/
Medequip	Syringe Driver loan	01773 604426 Mon-Fri 8-6, Sat 8-1pm, Sunday closed
Enhanced beds Team	For clinical support setting up syringe drivers	01332 258031 07799 337704
Community Palliative Care Team (South)	General information and advice to Nursing Home nurses about syringe drivers/symptom management	01332 787582
Dementia Palliative care Team		07917 515773
Palliative Medicine Consultant (UHDB)	For symptom management	01332 788794
The Nightingale Macmillan Unit Out of Hours Symptom Advice Line	Out of hours advice	(01332) 786040
Derbyshire Healthcare United (DHU)	For out of hours support/advice	111