Shropshire Community Health NHS
NHS Trust

McKinley T34 Syringe Pump Resource Pack

ADULTS

2019

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ACCOUNTABILITY AND REPONSIBILITY

- In order to administer drugs via the McKinley T34 syringe pump you must be a (Nursing and Midwifery Council 2015) registered nurse and have completed mandatory training and have successfully completed the T34 (lock-on) competency based assessment.
- **Reference to NMC Standards for:**
- Standards for medicines management (2010)
- NMC The Code Professional standards of practice and behaviour for nurses and midwives (2015)
- Record keeping guidance nurses and midwives (2010)

Local Trust Guidance including

- Policy for the administration of drugs via a McKinley T34 syringe pump for adults in the community (2018)
- Trust Medicines Policy (2016)
- Trust PGD for Sodium Chloride 0.9% , Water for Injection, Adrenaline
- Shropshire and Telford & Wrekin End of Life Care Group – End of Life Plan – Prescribing Guidance for Dying Patients
- Palliative Care- Guidelines for the use of drugs in symptom control- 5th Edition 2012. West Midlands Palliative Care Physicians - Shropshire Community Health Trust 2016
- Opioid Conversion Table – for use in Adult Palliative Care Patients (Appendix 3)

AIMS AND OBJECTIVES

AIM

To ensure safe use of the McKinley T34 Syringe Pump.

OBJECTIVES

1. Comprehend indications for the use of a syringe pump
2. List the equipment necessary and be able to safely set up a Syringe pump for patient use
3. Identify the key component parts of the McKinley T34 Syringe Pump.
4. Select appropriate sites that may be used for infusion by the Syringe Pump and subcutaneous bolus dosing.

5. To understand the need for subcutaneous bolus dosing.
6. Set up the McKinley T34 Syringe Pump
7. Identify drugs that are commonly used in the syringe pump
8. List T34 alert and alarm types, possible causes and action to be taken.
9. Understanding of and adherence to local guidelines and policies regarding use of the relevant equipment

Common indications for the use of a Syringe Pump

The syringe pump is an effective way of controlling a variety of symptoms

- To relieve pain not adequately controlled by oral medication
- For intractable nausea/vomiting not adequately controlled by oral/rectal route
- Inability to swallow/loss of oral route e.g. dysphagia, oral/oesophageal cancer
- To effectively control colic associated with bowel obstruction
- To provide effective sedation for agitated/restless end of life patients
- To reduce excessive/noisy secretions

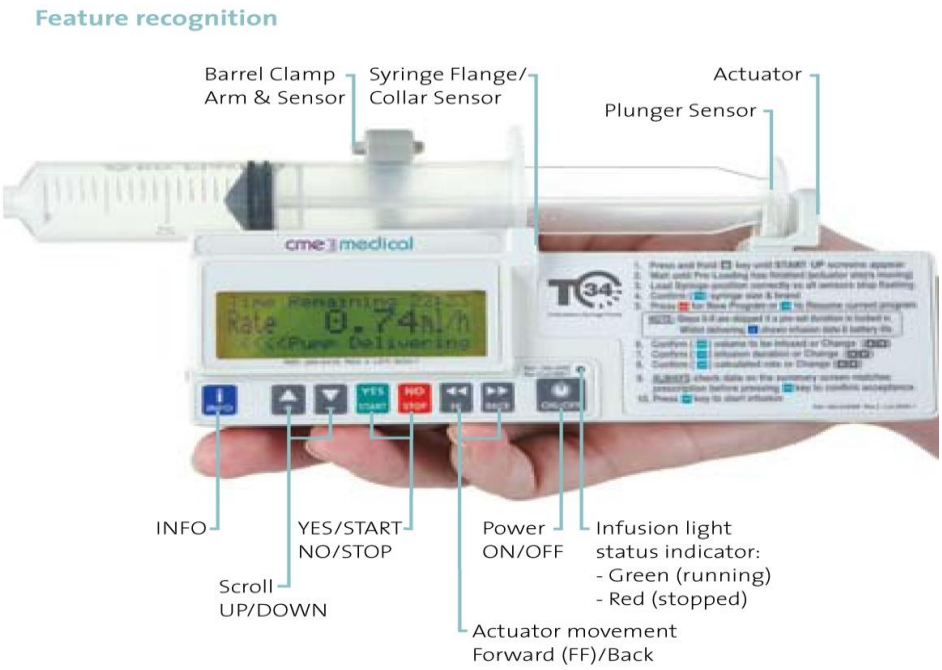
Infusion Sites for Saf-t-intima

- Anterior aspect of upper arm
- Anterior aspect of thigh
- Anterior chest wall
- Anterior abdominal wall
- Scapula region – (recommended for agitated patients only)
- Never site in oedematous/lymphoedematous/abdominal ascites or painful areas. Caution in choice of site in cachexic patients. Avoid areas where skin is inflamed or irritated
- Patient preference is important when choosing the site

DEFINITION

The McKinley T34 Syringe Pump is a portable battery operated device which delivers a continuous subcutaneous infusion (CSI) of prescribed drug(s) over a fixed period of time generally 24 hours, that complies with all current safety standards.

The McKinley T34 model is calibrated in ml per hour. All T34 pumps for palliative care are set up to deliver the syringe contents by CSI over a 24 hour period only. NB in exceptional circumstances your local palliative care team (via hospice) must be contacted if a shorter infusion period is required. You would need EBME involvement.



CHOICE OF SYRINGE

The recommended syringes to use with the McKinley T34 syringe pump is Becton Dickinson (BD) Plastipak or Braun Omnifix and only these must be used.

It is recommended that 20ml syringes should be used and that they MUST have a luer lock facility in order to avoid leakage or accidental disconnection. 30ml syringes may be needed for additional dilution.

NB The 50ml luer lock syringe is the largest syringe that will fit the Mckinley T34 syringe pump. It allows drugs to be diluted up to approximately 34 mls volume for BD syringes. This reduces the need for a second syringe pump when giving larger volume drugs, e.g. metoclopramide. A 50ml syringe is not recommended for routine use (it will not fit into the standard lockbox-however larger cases can be ordered via oracle) but may be used for specific problem infusions.

Size of BD syringe	Fill volume
20ml syringe	17ml
30ml syringe (exceptional circumstances	22ml
50ml syringe (exceptional circumstances)	34ml

EQUIPMENT REQUIRED. Action. - Collect necessary equipment which should be kept in a standardised box which can be decontaminated. (See Appendix 1)

- McKinley T34 syringe pump.
- Battery, PP3: 9 volt alkaline/lithium. (Plus spare batteries as a new battery will last for approximately 2-3 days depending on use.)
- 20ml luer lock BD Plastipak / Braun Omnifix syringe (BD Plastipak seem to fit well into the pump)
- Clean field
- Iml/2ml syringes and a selection of needles to draw up prescribed individual medications
- You should have signed a copy of PGD document for Water for Injection and Sodium Chloride for injection only use if signed off for PGD to fulfil legal requirement – unless it is prescribed on the authorisation.
- Safety Needles Blue 23G (to be used with glass ampoules)/Needles Green 21G
- Saf-T-Intima
- Additional Saf-T-Intima for giving bolus doses with male luer lock caps
- Recommended Syringe Extension set (currently CME 100-172SX)
- Ensure skin is clean. Wash with soap and water if visibly soiled.
- Transparent adhesive dressing e.g. C-View
- Drug Authorisation Documentation – ensure the details are correct
- Prescribed medicines / diluent
- Drug administration recording sheet / infusion label/Pump and site Monitoring chart
- Holster
- Lockbox and key
- Sharps Box and denaturing pad

Ensure syringe pump has been adequately decontaminated according to manufacturer's instructions. In accordance with local policy a completed Green Decontamination Status Band should have been attached to the syringe pump to the device has been cleaned and is ready for use – Refer to PCT Cleaning and Disinfection Policy: NB the T34 needs to be checked yearly as a medical device. Check if it's in date - a sticker will be on the pump. Ensure date and time are correct prior to use.

BOLUS DOSING

Bolus doses of drugs should be prescribed separately in anticipation of breakthrough symptoms. It is good practice to administer a bolus dose of the drugs prescribed for administration sub cutaneously to ensure that there is no delay in the relief of symptoms for the patient. The use of a separate line (Saf-T-Intima) removes the need to interupt the McKinley syringe pump and the possibility of compromising the one infusion site. A Saf--T-Intima would need to be primed with Sodium Chloride 0.9% prior to insertion. Once the bolus has been inserted into the Saf-T-Intima an additional 0.4 ml of appropriate diluent is required to flush the line to ensure that the full dose has been administered. On any subsequent administration of bolus dose please flush with Sodium Chloride 0.9% pre and post drug administration.

NB the total bolus dose should not exceed 1ml volume. In exceptional circumstances there may be a need to give a larger volume as prescribed under specialist advice.

Proceedure for setting up a T34 Syringe Pump Initial Infusion

Action	Rationale
1) Prepare the patient and explain procedure. 2) Document consent has been obtained and the action is in the patients best interest	1-2) To ensure adherence to the Mental Capacity Act 2005 and Consent for examination and Treatment (DOH 2009)
3) Ensure no interruptions whilst setting up the pump	3) To concentrate fully.
4) Gather equipment/prepare flat working surface on a clean field.	4) To ensure everything needed to carry out the procedure is available on a clean field.
5) Check patient specific direction/check drug balances	5) To ensure drug balances are correct. Ensure the Five Rights.
6) Ensure syringe pump has been decontaminated. Check MES sticker to ensure in date. Ensure no visible damage. Insert new battery if needed.	6) To adhere to infection prevention and control guidance.
7) Ensure barrel clamp is down.	7) To ensure the pump can undertake the pre-loading check.
8) Press on/off key to power up. The display screen will display Screen one “McKinley T34” Screen Two Pre-Loading Screen Three Occlusion, Max rate, Program lock ON, Battery Status Screen Four Load Syringe THESE STEPS ENSURE MACHINE IS IN WORKING ORDER – TURN OFF NOW AT THIS POINT	8) To ensure the pump is working correctly before drawing up the drugs. The pump goes through pre-loading process (back actuator moves backwards and returns to previous start position). This process deletes the previous program. If no keys a pressed for 2 minutes there will be an audible and visual alarm “Pump Paused too long, Confirm Press YES” to stop the alarm.
9) Decontaminate hands and put on single use non-sterile vinyl gloves	9) To prevent any cross infection.
10) Draw up prescribed drugs (use a blue needle for glass ampules) and diluents to 17mls fill volume into 20 ml luer-lock syringe and prime the McKinley extension set and Saf-t-intima this is approximately 1ml volume. The Saf-T-Intima should be changed when clinically indicated. Dispose of sharps in accordance with Trust policy.	10) To ensure a consistent and auditable approach to the setting up of the pump. The use of blue needles reduces the risk of contamination of glass shards. Choosing a site most appropriate for an individual patient will reduce patient anxiety and the risk of complications. The Saf-T-Intima is licensed to stay in situ up to 30 days. A transparent dressing will allow for the insertion site to be visualized.

11) Complete and attach drug label so plunger and content remain visible. TURN ON T34 DEVICE – REFER TO STEP 8 BUT LEAVE MACHINE ON	11) To ensure that information on which drugs are being administered can be quickly found and a visual check of the amount of volume administered can be made.
12) Press blue Info key; Press yes to check battery level. which must be over 35% and wait for the load syringe screen to return. Press the blue info button again- using the down arrow key scroll down to Events Log and press YES this will show • Event No: • Date and Time in 24 hour clock • Volume Change • Press INFO –Details Once the check has been made press NO and the pump will shortly display the LOAD SYRINGE screen.	12) If level displayed is 35% or less the battery will need to be changed. The screen will revert to "load syringe" if no other buttons are pressed. If when in the Event Log screen you press YES the date and time can be viewed and checked as correct. The date and time displayed should be recorded in the patient's notes if not correct.
13) Align syringe over pump so syringe collar and plunger fit in the correct position move the actuator to sit the plunger at the correct position using the forward and back keys.	13) This will allow for the professional to adjust the actuator ready to fit the syringe.
14) Lift the barrel arm clamp up and turn to 90 degree position. Fit the syringe ensuring all three detection points recognize syringe. Twist barrel arm clamp firmly down into position. 15) The screen will display the syringe detected... However the screen can be changed if the incorrect syringe name is displayed, by pressing the (+) or (-) key. Once the right syringe has been identified press "YES" to confirm. The next screen will display Volume, Duration, Rate, Confirm : Press YES- and the Start Infusion Screen displays – ensure all administration direction is correct	14) To ensure the syringe will slot into position easily and is fitted correctly. **The full syringe should always be loaded into the pump unattached to the patient to ensure no risk of an inadvertent bolus from a full syringe.** 15) To allow pump to recognize the type of syringe being used. To ensure safe and correct administration
16) Insert Saf-T-Intima (see infusion sites above in combination with patients preferences) Cover with transparent dressing, Do not cover the clamp with the dressing.and REMOVE GUIDEWIRE USING OTHER HAND TO SECURE DEVICE TO ENSURE SAFE REMOVAL	16) Ensure Saf-T-Intima is inserted as per manufacturer's instructions and best practice guidance.
17) The screen displays "Start Infusion?" Press green Yes Key. The screen will then display Time remaining, Rate, PUMP DELIVERING all should be checked for accuracy before commencing the infusion .The infusion must not be commenced if the information displayed is incorrect.	17) To ensure that it is safe to start the infusion.
18) Hold blue info key down to put keypad lock on and watch the movement of the line from the Lock OFF to ON . Ensure green light flashes and time decreases. 19) Put pump in lock box and lock 20) Remove gloves and decontaminate hands. 21) Single patient use holsters should be given to all patients. 22) Record start volume/rate of infusion/battery level and other details on the syringe pump monitoring form.	18) To prevent any accidental pressing of the keys and ensure the pump is functioning correctly. 19) For safety. To prevent unauthorized access to the syringe of drugs 20) To adhere to infection prevention and control guidance 21) To safely hold the syringe pump and protect from sunlight 22) To abide by NMC codes of practice.

23) The relatives / carers need to be given contact numbers to access professional help over a 24 hour period. Guidance for the changing of batteries and dealing with alerts and alarms should be provided where appropriate.	23) To ensure access to help throughout a 24 hour period.
Procedure for changing the SYRINGE ONLY	
If infusion completed- remove lock on and switch machine off and clamp line. Check Saf-T-Intima site.	**Ensure that the previous infusion has infused correctly and run to time.**
If infusion not completed – check correct delivery and Sat-T-Intima site	
Decontaminate hands and apply gloves and apron	**Per infection control policy**
Draw up prescribed medications via appropriate syringe to correct fill volume and attach label	
Unlock the syringe driver box	
Where syringe had not completed - Press blue info key and hold to unlock the key pad.	
Check display settings and record any remaining syringe contents	
Press INFO key again to check battery level. IF 35% or less you will need to change the battery.	The newly drawn up medication should be put in the syringe pump before re-attaching to the patient to prevent bolus dose as clamp on saf-T-intima is fragile.
Press red stop key	
Press off key.	
Apply CLAMP to Saf-T- Intima	
Remove completed syringe from T34 device and leave syringe attached to the patient.	
TURN ON T34 DEVICE	
Press on/off key to power up. The display screen will display	
Screen one “McKinley T34”	
Screen Two Pre-Loading	
Screen Three Occlusion, Max rate, Program lock ON, Battery Status	
Screen Four Load Syringe	
Follow steps 13-15	
Remove the syringe attached to the patient and attach the newly drawn up syringe attached to the T34.	
REMOVE THE CLAMP	
Follow Steps 17-23 above.	
ENSURE CLAMP HAS BEEN RELEASED BEFORE COMMENCING INFUSION	

Changing the set-up of a T34

The **ONLY** setting currently being changed by senior clinicians is the time setting of the T34 by identified staff. These staff must have been instructed on the procedure to change the time so that summer and winter time changes can take place contemporaneously keeping the Event Log correct.

A DATIX MUST BE COMPLETED FOR ALL ADVERSE EVENTS.

In addition in the event that the T34 malfunctions in relation to its functionality the T43 MUST be sent immediately to MES for checking with an explanation provided. If any of the ancillary products malfunction the manufacturer must be informed

The T34 is set for a 24 hour infusion period only.

Scenario.

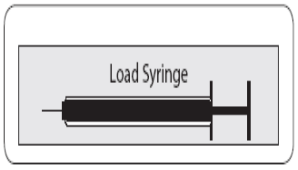
Pump default settings:	Lock ON, duration 24 hours
Syringe	20ml BD Plastipak syringe /Braun Omnifix.
Volume to be delivered	17mls

POWER UP
Ensure Barrel Clamp down & no syringe in place:
(First 3 screens display during actuator movement)

McKinley T34 Version N 105CAT	Pump details
McKinley T34 Version N 105CAT	The actuator is moving to the -position of the last syringe that was in - place, at the start of the previous -infusion
McKinley T34 Version N 105CAT	Pump default settings are displayed

When actuator has stopped: Use the FF/back keys to move the actuator to the correct position for syringe loading.

(Ensure barrel clamp is down.)



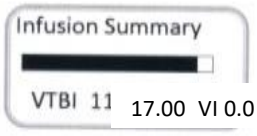
Syringe graphic flashes.
When syringe detected in all 3 Points, flashing stops & the next Screen is displayed automatically.

20 ml BD Plastipak Select ↑↓ Press YES	If incorrect syringe size / brand Displays, use ↑↓ keys to scroll for the one required.
Volume 17.0ml Duration 24.00 Rate 0.71ml/h	Infusion summary is displayed **Carefully check all settings Match the prescription before Pressing YES to confirm.**
Start infusion?	Press "YES" to start the infusion When ready to do so

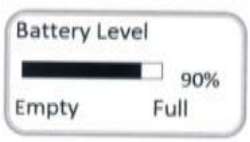
Time remaining 24.00 Rate 0.5 ml/hr	Running Screens will Alternate During infusion	Time remaining 23:59 Rate 0.71 ml/hr

MONITORING WHILST INFUSING.

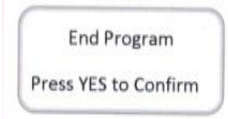
Press INFO KEY **once**:



Press INFO KEY **once**:



END OF INFUSION.



Programme is complete.

MONITORING AN INFUSION IN PROGRESS

- To get a summary of the infusion press the info key **once**
- Assess the stability of syringe content
- Assess the site
- Check the battery level at each visit
- Record after each assessment

DO NOT

- Drop the syringe pump
- Immerse it in water
- Stick surgical adhesive tape to the syringe pump

NB. If the syringe pump is accidentally dropped or immersed in water it should be checked as soon as possible by a qualified engineer, as this could result in the delivery of medication to the patient being altered.

DOCUMENTATION AND MONITORING

- Record details of preparation and commencement of infusion on recording chart.
- Date
- Time
- Total visual volume of syringe contents (i.e. drug(s) and diluents)
- Drug name(s) and batch number(s)
- Diluent name and batch number(s)
- Medical physics reference number on syringe pump
- Signature(s) of person(s) preparing and checking
- Site used and appearance
- Battery level (%) Record (daily)

McKINLEY T34 PUMP ALARM CONDITIONS

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 ALARM CONDITIONS -The alarm will sound for the following reasons:

LCD Display	Alarm type	Possible Cause	Action
Occlusion or Syringe Empty Occlusion/ Syringe Empty Check Line & Syringe Press YES to Confirm	Audible and visual alarm.	Patient cannula/line blocked, kinked. Occlusion. Infusion has finished.	Remove occlusion and restart as per page 23. Flush/change cannula as per local policy. End of program, switch pump off.
Syringe Displaced Syringe displaced, Check Syringe, Press YES to Confirm	Audible and visual alarm. Intermittent beep.	Syringe has been removed or displaced.	Check and confirm syringe seated correctly and resume infusion. Syringe flanges need to be in the vertical position at all times.
Pump Paused Too Long Pump Paused Too Long Confirm, Press YES	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 Near End	Audible and visual alarm. Intermittent beep.	15 minutes from end of infusion.	Prepare to change syringe or switch off.
End Program End Program Press YES to Confirm	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 Low Battery	Visual alarm.	Battery is almost depleted (30 minutes left).	Prepare to change battery and resume infusion.
End Battery Battery End	Visual alarm.	Battery is depleted.	Change battery and resume infusion.

PAGE NUMBERS RELATE TO ORIGINAL T34 RESOURCE BOOK

CLEANING AND DECONTAMINATION

Cleaning should be carried out with disposable detergent wipes (non-alcohol) allow to dry thoroughly. The pump must not be submerged in water (and if it is accidentally dropped in water, it must be withdrawn from use immediately and sent to Medical Physics).

COMMON PROBLEMS.

Fault	Possible Cause	Action
The pump will not start.	1. No battery present. 2. Battery inserted incorrectly. 3. Battery is depleted/very low. 4. Pump is faulty.	1. Fit a battery. 2. Re-align battery terminals. 3. Fit a new battery. 4. Service required.
Infusion ended early/going too quickly.	1. Wrong syringe brand confirmed during set up/incorrect volume measured by pump. 2. Pump faulty or incorrectly calibrated.	1. Stop infusion and discuss with doctor. Set up a fresh infusion. Ensure correct understanding of user/educate. 2. Service/calibration required.
The pump has stopped before emptying syringe.	1. Exhausted battery. 2. Faulty pump.	1. Fit new battery, turn pump on, confirm syringe size and brand select to resume infusion. 2. Return for service.

SUMMARY

The McKinley T34 Syringe Pump can provide a safe and effective method of infusion therapy providing the user adheres to the recommendations enclosed.

GUIDELINES FOR USE

Points to remember:

1. Always ensure that the syringe pump is checked annually for performance accuracy (MES)
2. Use the recommended syringes, batteries, etc.
3. Do not use the syringe pump if you are uncertain of how to use it.
4. Make sure you use a 20 ml luer lock syringe for the infusion unless exceptional circumstances such as larger volume of drugs.
5. If in doubt seek further advice.
6. Never use a damaged syringe pump.
7. Complete annual on-line training and lock on competency yearly and face to face training 3 yearly

DRUGS NOT SUITABLE FOR USE IN A SYRINGE PUMP

Diazepam (Valium)

Precipitation and tissue necrosis

Chlorpromazine (largactil)

Skin sensitivity

Prochlorperazine (stemetil)

FOR PRESCRIBING GUIDANCE REFER TO THE END OF LIFE PLAN PRESCRIBING GUIDANCE FOR DYING PATIENTS - AT THE REAR OF THE PLAN – SEEK MEDICAL/HOSPICE ADVICE

For On Line training go to: CME McKinley Online Training System training site and register.

www.cmemedical.co.uk/training/clinical-training/clinical/elearning/

USE GOOGLE CHROME

Your CME McKinley Online Training manager is Georgina English Clinical lead for Community Nurses
Georgina.english@shropcom.nhs.uk

The Trust Password is SY38XL

This training should be accessed prior to the practitioner accessing The Trust Practical session on how to set up a T34 Syringe pump with certificate obtained.

LOCAL CONTACT FOR ADVICE

Shrewsbury Hospice 01743-236565

Telford Hospice 01952 221350

Telford Hospital Palliative Care [PRH] 01952-641222, Ext 4565 Office hours

SATH Palliative care 01743-261649 office hours

Shropdoc 01743 454903

T34 Syringe Pump

EXPIRY DATE OF BOX (Month) (Year)

	Item	✓	Exp	Qty	Documentation	✓
1	T34 Syringe Pump			1	Palliative Care PSD As Required Prescription Sheet	
2	McKinley Narrow Bore Ext Sets (Priming Volume <			5	Palliative Care PSD Authority to Administer T34 (NA110)	
3	Saf-t-Intima Giving Sets			5	Palliative Care Medication Administration Record	
4	1ml Syringes			5	Syringe Pump Subcutaneous Access Monitoring (NA112)	
5	2ml Syringes			5	Drug Stock Balance (NA105)	
6	20ml Luer Lock Syringes (Braun Omnifix /			5	Pain Chart (NA102)	
7	Blue Needles (23G)			10	Evaluation Sheet (GC107)	
8	Green Needles 21G - For water/sodium chloride only if			5	EOL Plan	
9	Sterile Water 10ml or 20ml			5	DNACPR	
10	Sodium Chloride 10ml or 20ml			2	Thinking Ahead Document	
11	Semi Permeable Clear Film			5	Thinking Ahead Leaflet	
12	Aseptic Dressing Pack			1	Five Rights Label	
13	Soft Toothbrush / Oral Hygiene Moutheze25s			5	Drug Labels for T34 (NA202) x5	
14	Equipment Wipes - Clinell			10	Signs & symptoms end of life care leaflet	
15	Blocking Caps			5	What to do after death leaflet	
16	Scissors			1	Palliative care checklist NA129	
17	Gloves			1	Fast track pathway tool (2018)	
19	Pen Torch			1	Funeral director verification of death form V2.0	
20	Plasters/ Gauze / Tape/simple adhesive dressing		NA	5	Verification of expected death V1.2	
21	Lockable SP Box		NA	1	**Re-stocked by: (Full Name)**	
22	Single Patient Use SP Holster		NA	1		
23	Batteries 9V		NA	5		
24	Sharps Box - Yellow Top		NA	1	**Date: / /**	
25	De-Naturing Absorbent Pads for Sharps		NA	1		
26	Clean Field Sheets / Blue sheets		NA	5	**Box Number**	

Contents of Box

CME McKinley

T34 COMPETENCY-BASED ASSESSMENT

Access level: LOCK ON

SCENARIO:

You are required to administer a drug infusion using a T34 syringe pump.

For the purpose of training, the candidate used the following criteria:

The drug is to be delivered over a period of: _____ *Hours - (pump default setting)*

Syringe size used: _____ *ml*

Syringe make used: _____

Total fluid volume in the syringe is: _____ *ml*

Priming volume of line is: _____ *ml*

	PERFORMANCE CRITERIA ACHIEVEMENT THROUGH CANDIDATE DEMONSTRATION, FACILITATOR OBSERVATION AND/OR QUESTIONING *The candidate achieved these outcomes because she/he has:*	✓ achieved X not achieved
	START UP	
1.0	Ensured that all equipment is available and serviceable, checked that:	
1.1	The device is clean and visually intact	
1.2	The device is appropriate for the intended use and the mode of operation is identified	
2.0	Correctly prime/prepare infusion equipment:	
2.1	Checked that the syringe and extension set are appropriate and compatible for the device and the drug delivery	
2.2	Manually primed an infusion set	
3.0	Powered up the device:	
3.1	Checked that a syringe is **not** loaded and the barrel clamp arm is down on the device	
3.2	Installed the appropriate battery (6L.R61)	
3.3	Turned the device on	
3.4	Observed the completion of the pre-programmed start-up sequence (actuator movement)	
3.5	During pre-programming, checked the LED display to confirm the default settings of the device	
3.6	Checked the battery power available is sufficient to run the device for the prescribed duration	
4.0	Ensured syringe placement and detection:	
4.1	Visually aligned the 3 syringe sensors to syringe and used the FF/back keys to adjust as necessary	
4.2	Correctly loaded the syringe: ensured the syringe is placed in the 3 detection areas fully and observed LCD screen to confirm correct placement	
4.3	Checked that the device had correctly identified the syringe brand and size and taken appropriate action if necessary if not identified correctly	
5.0	Verify set parameters:	
5.1	Reviewed the summery screen: Checked LCD screen for correct duration of infusion (volume, duration & rate)	
5.2	Observed "start infusion?" screen	
5.3	Checked that the administration set was connected to the patient access port and the clamp was released (if not already done so)	
5.4	Correctly commenced the infusion and observed the "running screen"	

6.0	**MONITORING** Correctly accessed/explained the **INFO KEYS** to:	
6.1	Single press to view: volume infused & volume to be infused	
6.2	Double press to view: battery status	
6.3	Revert to default running screen	
6.4	Activate/deactivate key pad lock	
7.0	Demonstrated awareness/performed checks/or action to be taken in relation to audible/visual **ALERT**:	
7.1	Near end of infusion	
7.2	Low battery	
8.0	Demonstrated awareness/performed checks/or action to be taken in relation to audible/visual **ALARMS**:	
8.1	Occlusion	
8.2	Syringe empty	
8.3	Syringe displaced	
8.4	Pump paused too long	
8.5	End battery	
9.0	**CLOSE DOWN** Correctly closed down and dismantled the device (assuming duration completed):	
9.1	Checked device/tubing disconnected from access device	
9.2	Removed syringe from device and returned barrel clamp to down position Turned the device off	
9.3	Demonstrated safe removal of disposables	
9.4	Correctly removed the batteries ready for storage	
9.5	Cleaned/decontaminated /stored the device as per local policy/manufacturer instructions	

Use this space to add any additional comments on the assessment. Please ensure that each comment relates clearly to a numbered performance criterion.	
No	

Though not part of the assessment for starting up, monitoring and closing down of the device in the correct sequence, the user must be aware of other features that are available, the prompts that can appear and action to be taken in certain circumstances.

FEATURE: Purge option

*In order to eliminate/reduce slack (visible spaces at the syringe collar & plunger loading points) and ensure a faster start up time (time to reach the programmed infusion rate), the user can purge the system (**once only**) up to up to the default setting of 0.2ml).*
To use this option after syringe confirmation:
a. Press FF key
b. Ensure the patient is NOT connected to the set & Press Yes to confirm.
d. Press and Hold the FF key until the slack is removed and/or purge is completed
e. Press STOP to return to programming screens when purge is completed.

PROMPT: Pump paused too long

Activated after 2 minutes if the device remains paused: Pause can be continued by pressing the "yes" key.
Options available: re-pause, restart the infusion or turn the device power off.

PROMPT: "Resume"/"new programme" screen

If the pump was stopped and turned off before the last program reached "End Program" the Resume prompt screen will appear (e.g. if, during an infusion, the pump was powered off to change the battery). Press NO to continue programming the new regime.Press YES to resume current programme.

ACTION TO: Silence the alert/alarm noise before troubleshooting

Press "yes" key to silence the alert/alarm noise for 2 minutes (device is paused). Observe screen to indicate the reason for the alert/alarm.

Date completed: ..... Candidate name: .....

Attach this completed sheet to your learning portfolio

Severn Hospice

Shrewsbury - 01743 236565 Telford - 01952 221350

Opioid Conversion Table - For Use in Adult Palliative Care Patients

- This is to be used as a guide. Individual patients may metabolise different drugs at varying rates. If in doubt, **ASK**.
- Always calculate the dose using morphine as standard and adjust to patient and situation.
- When switching opioids, a dose reduction of 25-30% is recommended. When converting high doses (more than 500mg oral morphine) it is recommended to reduce the dose by 50% initially to avoid toxicity. Discuss with the Specialist Palliative Care Team – Consultant advice available 24/7.

Diamorphine		Morphine			Oxycodone					Fentanyl	Buprenorphine	
Subcutaneous (mg)		Oral (mg)			Oral (mg)			Subcutaneous (mg)		Transdermal Patch (Micrograms/hr)	Transdermal Patch (Micrograms/hr)	
4hr dose	24hr dose	4 hr dose	12hr dose	24hr Total dose	4hr dose	12hr dose	24hr dose	4hr dose	24hr dose	Patch Strength Stable pain only Change every 3 days	Patch Strength Stable pain only	Alfentanil Subcutaneous 24hr total dose (mg)
				5							5 Butrans	
				10							10 Butrans	
				15							20 Butrans	
				20							30 Butrans	
1.25	10	5	15	30	2.5	7.5	15	1.25	7.5		35 Transtec	1
2.5	20	10	30	60	5	15	30	2.5	15	25 mcg/hr	35 Transtec	2
5	30	15	45	90	7.5	25	50	3.75	25	25 mcg/hr	52.5 Transtec	3
7.5	40	20	60	120	10	30	60	5	30	50 mcg/hr	70 Transtec	4
10	60	30	90	180	15	45	90	7.5	45	50 mcg/hr	87.5 Transtec	6
12.5	80	40	120	240	20	60	120	10	60	75 mcg/hr	140 Transtec	8
15	100	50	150	300	25	75	150	12.5	75	75 mcg/hr		10
20	120	60	180	360	30	90	180	15	90	100 mcg/hr		12
25	140	70	210	420	35	105	210	17.5	100	125 mcg/hr		14
27.5	160	80	240	480	40	120	240	20	120	125 mcg/hr		16

- Breakthrough doses should be approximately 1/6 of the total daily dose.
- Renal impairment is likely to increase the risk of opioid toxicity. Discuss with the Specialist Palliative Care Team.
- Oral Tramadol 100 mg is equivalent to 20 mg oral morphine.

Dr T Stevens 2014

Review July 20

Consultation

Cath Molineux Nurse Consultant / End of Life Lead SCHT

Anita Sharrad	Clinical Practice Teacher	SCHT
Deana James	Clinical Practice Teacher	SCHT
Tracey Fisher	Clinical Practice Teacher	SCHT
Rita O'Brien	Chief Pharmacist	SCHT
Liz Watkins	Infection Control	SCHT
Catherine Chaplin	Clinical Educator	SCHT