# Guidelines for the use of CME T34 Syringe Pumps in the Neonatal Unit for short duration, small volume intravenous infusions

## Purpose of Procedure/Guidelines/Protocol:

To provide guidance on use of CME T34 pump in the neonatal environment.

## Replaces:

New

## Applicable to which staff:

Neonatal Staff CAH

## Name & title of author:

SHSCT Syringe Pump Procedures Working group

## Equality Screened by:

Note any issues:

Not required

## Proposals for dissemination:

Via Lead Nurse Neonatal to ward based nursing staff

## Proposals for implementation:

Include at induction of new staff and staff to complete annual competency assessment thereafter

## Training Implications:

Self-directed e-learning programme available on Trust Network

## Date Procedure/Guideline/Protocol submitted to Procedures Committee:

25-06-14

## Outcome:

Approved

## Comment:

Approved/Minor amendments

Not approved

Deferred

## Date of CYP SMT approval

Comments:

## Date of approval by Trust SMT (if required):

## Date approved by HSCB (Social Work only):

## Date for further review (3 year default):

## Date added to repository:

## Date added to Intranet:

State where to be placed on Intranet:
Southern Health and Social Care Trust

Guidelines for the Use of CME T34 Syringe Pumps in the Neonatal Unit for short duration, small volume Intravenous Infusions

December 2013

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<tr>
<th>Author</th>
<th>Syringe Pump Procedures Working Group</th>
</tr>
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<td>Approved by</td>
<td>December 2013</td>
</tr>
<tr>
<td>Review date</td>
<td>December 2016</td>
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INTRODUCTION

This document sets out procedures for the safe use of CME T34® syringe pumps within the Neonatal Unit in the Southern Health and Social Care Trust (SHSCT) and should be followed by all registered nurses, midwives and doctors working in this specialty area. It is designed as a reference resource and is available to all staff.

The main use of the CME T34 syringe pump is for intravenous infusion of small volume infusions in neonatal patients.

It is the responsibility of managers and supervisors to ensure that these procedures have been brought to the attention of all relevant staff, and it is the responsibility of staff to read and adhere to the content of this document.

Training

Training for use of CME T34 pump includes a 1 hour practical workshop with an Advanced User and completion of workbook.

The completion of on-line training and certificate obtained for same can be found at the link: http://cmemedical.co.uk/online-training with your organization password SHSCT123. Certificate of successful completion of training must be given to your line manager and a copy retained in your personal file.

This password will link all device users to Southern Health and Social Care Trust on the database.

Competency Element Review Form- Individual Staff Member (STCERF-03)
Available via, Intranet Access pathway- Home page > Directorates> Medical Equipment > Competency Elements Reviews (worked examples) A copy should be forwarded to your line-manager.

Yearly up-date of on-line training and evidence provided to your line manager.

PURPOSE OF THESE PROCEDURES

These procedures have been developed to support the clinical governance agenda and ensure patient safety and continuing service improvement.

A copy of these procedures can be downloaded from the Southern HSC Trust intranet website. Home Page – Policy and Procedures – Children and Young Peoples Services –NeonatalProcedures.
PREScribing Medications For Adinistration Via Syringe Driver

All medication administered via the syringe pump should be clearly and correctly prescribed according to the Southern Trust Medicines Code 2013. Staff need to ensure they also adhere to relevant

- NMC Standards for Medicine Management (2008)
- NMC Guidance on Record Keeping (2009)
- All medicines to be administered to the neonate must be prescribed on the Neonatal Drug Prescription chart.

**The following information must be included on the prescription:**

- Patient demographic details
- Any known allergies
- Medicine name (generic in CAPITALS)
- Dose
- Diluent
- Route of administration
- Duration of intravenous infusion
- Prescriber’s signature

2 registered practitioners in the Neonatal Unit should always be involved in the preparation, checking and administration of the medication and should ensure

- Prescription is correctly written and signed
- Compatibility of medicines prescribed
- Diluent is appropriate
- Infusion volume required
- Size of syringe required

**Risk Assessment Prior To Procedure**

Do not operate a syringe pump unless you have

Completed and evidenced Competency Training as directed on page 3 of this document.

To practise competently, you must possess the knowledge, skills and abilities required for lawful, safe and effective practice without direct supervision.

You must acknowledge the limits of your professional competence and only undertake practice and accept responsibilities for those activities in which you are competent.
• **You** are personally accountable for your practice. This means you are answerable for your acts or omissions, regardless of the advice or directions from another professional.

• **You** have a duty of care to your patients and clients, who are entitled to receive safe and competent care.

**Identify potential risks!**

• Ensure that the syringe pump is fully functional prior to use.
• Conduct a physical examination of the pump to check for any signs of damage, i.e. has the device been dropped?
• Conduct a physical examination to check for signs of fluid ingress
• Ensure that the Next Test Due date has not been exceeded and that the annual maintenance and servicing arrangements for syringe pumps are observed as per SHSCT operational procedures and manufacturer’s recommendations CME (2013).
• Do not modify or adapt the device for any use other than those recommended by the manufacturer
• Each area must maintain their own local register and ensure that information on location, asset numbers, records of faults / repairs / transfers is maintained.
Essential equipment for setting up the CME T34 syringe pump

- CME T34 syringe pump and plastic lockbox and key
- 9V alkaline battery and a spare
- Luer Lock syringes (size may vary pending infusion volume - BD Plastipak) and needles
- Sharps Container (purple lidded burn box)
- Prescribed medicines and diluent
- Blank Syringe Pump medication Label and pre transfusion checklist sticker
- Clean trolley for preparation of medications
- T34 LOCK OFF (Prime and Load) Quick user guide see appendix

Device Set Up, Configuration and Safety Features

Only designated staff with the authority and relevant access codes can change pump default settings and configuration via the pump and/or Body Comm communications software. Access code protected areas are available in the pump though no code is required to turn the pump on and run an infusion. The pump can be configured for adult or paediatric use, for specific drug delivery route and for any of three modes of operation depending on the drugs being delivered. Safety features include secure user access codes, lockbox, keypad lock, alarms, pre-set maximum rate limit and administration set colour-coding (optional).
Lock Off Mode of Operation

The mode of operation your pump is configured to is Lock OFF: the pump will deliver the syringe volume confirmed, over a variable duration. Once a syringe is detected and confirmed, the pump calculates the ml/hr infusion rate:

\[
\text{Syringe volume} \\
\text{Fixed duration} = \text{ml/hour infusion rate}
\]

The pump calculating the hourly infusion rate prevents programming errors and makes setting up an infusion very simple as the user is not required to enter data/numerals during infusion set up/programming, however the user must check, change and/or confirming information and programming screens. This includes checking that the programme summary screen (showing duration, syringe volume and the calculated rate) matches the prescription before starting the infusion.

Syringes

The T34 ambulatory syringe pump may be calibrated and programmed to operate with most commonly used luer lock syringe brands and sizes.

- It must only be used with the brand for which it is calibrated. This information will appear on the screen.
- ALWAYS use a luer lock syringe. Do not use slip-tip syringes.
- The SHSCT uses BD Plastipak luer lock syringes and the CME T34 pump is calibrated for use with these only.

Luer lock syringes ensure secure connection of the infusion set and the pump is calibrated for luer lock only. Use of an incorrect syringe may result in under or over infusion as the dimension of some manufacturers slip-tip syringes differ from their own luer lock variants, and a slip tip syringe may become disconnected from the administration set.

LABELLING THE SYRINGE

When the medicines have been drawn up into the syringe, label the barrel of the syringe using one of the white labels entitled “Medicines in syringe for injection / infusion”.
These labels may be ordered from Regional Supplies Service (RSS). Order code: WRN2501
Ensure that the label:

- **DOES NOT** interfere with the mechanism of the syringe pump, for example where there is contact with the barrel clamp arm.
- **DOES NOT** obscure the visual scales on the syringe which may require to be viewed during infusion.

**The following details are required on the label:**

- Patient name
- HSC number
- Medicine Name(s) and Batch number
- Dose of each medicine
- Diluent name and Batch number
- Total volume in ml
- Route of administration
- Date and time prepared
- Initials of the individuals preparing the syringe

**Administration Sets**

The T34 can be operated with any administration set with a luer connection. In the Neonatal Unit the syringe will be attached directly to an **Octopus 1 extension set with leur lock end.**

![Image of T34 syringe pump](image)

**Battery**

Duracell Procell 9 volt alkaline batteries are recommended and used in the Southern trust.

**Please change battery if screen displays capacity is LESS than 50%**

To insert the battery, remove battery cover and insert a new 9volt alkaline battery into pump, ensure that the +/- contacts are aligned as shown inside the battery compartment.
Replace the battery cover and switch on the pump. Press the ‘INFO’ key twice until battery level appears on the screen. Check the readout on the screen displays a sufficient battery life remaining (shown as a percentage (%)). See below

NOTE: New batteries may not always display 100% battery life.

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**Lock box (use is optional in the neonatal unit)**
The lock box will fit most commonly used syringe brands and sizes up to 30ml. Lock boxes are made from Polycarbonate due to its high, temperature resistance and optical properties, durability tests confirm that the overall design and construction of the T34 lock box ensures that they are fit for their intended purpose of protecting the T34 syringe pump from damage caused through normal daily use and drops within the accepted normal range of one meter.

Insert the syringe pump in to the plastic locked box and ensure that the protective plastic cover is correctly in position and that the administration line is not trapped in the box.

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**Carry Pouches**
Disposable pouches are available but are not routinely used in the Neonatal Unit.
INFUSION SITE SELECTION

A peripheral intravenous cannula in a vein of choice will be used for infusion of medications using the CME T34 infusion pump. The infant will have a Neonatal peripheral Cannula insertion and maintenance chart in place and site inspection will be carried out at start and on completion of the infusion. In the Neonatal Unit Infusions via the T34 syringe driver do not take place over a period greater than 30 minutes.

When to change the infusion set/site

Intravenous cannulas can remain insitu if cannula still required and there are no signs of infection (especially if venous access is limited.)
(High impact Intervention: Peripheral intravenous cannula care bundle)

To avoid the potential risk of syringe contents siphoning out of syringe;

Ensure the syringe pump is placed at the same level as or lower than the infusion site.
**ADMINISTRATION OF INTRAVENOUS MEDICATIONS VIA A PERIPHERAL INTRAVENOUS LINE USING THE CME T34 SYRINGE PUMP**

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash and dry hands thoroughly. Put on protective powder-free disposable gloves (Latex or Nitrile) and plastic apron.</td>
<td>To comply with N. Ireland Regional Infection Control Manual (2008) and Best Practice for Aseptic Non Touch Technique (ANTT)</td>
</tr>
<tr>
<td>Administer all prescribed medications in accordance with:</td>
<td>To ensure safe administration of medicines.</td>
</tr>
<tr>
<td>• NMC (2008) Standards for Medicines Management.</td>
<td>The use of calculators to determine the volume or quantity of medication should not act as a substitute for arithmetical knowledge and skill.</td>
</tr>
<tr>
<td>• All relevant SHSCT Policies and Procedures.</td>
<td></td>
</tr>
<tr>
<td>• Comply with ANTT principles and procedures in preparation and administration of drugs.</td>
<td></td>
</tr>
</tbody>
</table>

**NB** In a hospital setting two registrants must always carry out checks.
<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using ANTT prepare new syringe using a BD Plastipak <strong>luer lock</strong> syringe with prescribed medication as per NMC Standards for Medicines Management (2008).</td>
<td>Precipitation or discoloration could indicate incompatibility between medicines and / or solution. DISCARD – if this occurs as per Trust Policy. Re-check compatibility and mixing technique or contact prescriber</td>
</tr>
<tr>
<td>Invert the syringe to mix contents, observing for precipitation or discoloration of medication.</td>
<td>To enable easy identification of syringe contents</td>
</tr>
<tr>
<td>Once syringe is filled – attach the adhesive label detailing contents as recommended by the DHSSPS (2007).</td>
<td></td>
</tr>
<tr>
<td>Attach duplicate syringe label detailing the contents into the patient's notes alongside the T34 syringe check label- as opposite.</td>
<td></td>
</tr>
</tbody>
</table>

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**T34 Syringe Checks**
- Paediatric Pump
- Any damage/fluid ingress/next test not exceeded
- Battery capacity
- Volume
- Duration
- Rate
Syringe Loading, Detection and Confirmation

1. Manual adjustment of actuator
   a) Ensure the barrel clamp arm is down.
   b) Place the syringe above the pump to align the syringe collar to the collar sensor.
   If required, use the F/Back keys to move the actuator to the correct position for placing the syringe plunger into the plunger sensor.

2. Syringe fitting
   a) Lift the barrel clamp arm fully and turn the arm 90°.
   b) Place the syringe collar vertically into the pump collar slot and the syringe plunger into the pump plunger slot, (the syringe should click into position).
   c) Turn and lower the barrel clamp arm onto the syringe.
   As you correctly seat each point of the syringe the flashing indicator for that sensor becomes solid on the screen display, when all three sensors detect, a syringe size and brand display.

3. Syringe detection and confirmation
   The pump identifies the syringe brand, size and volume by measuring the syringe dimensions from the three sensors.
   a) Check that the syringe brand and size inserted into the pump matches the syringe brand and size displaying, if they match confirm by pressing YES.
   If the syringe brand displayed is not correct use the ↑/↓ arrow keys to scroll between brands of similar dimensions. This will only happen if the syringe selected has dimensions within +/-1mm of other commonly used brands.

Pump Programming. Resume or New Syringe?

When a syringe has been confirmed the pump calculates the ml/hr rate from the syringe volume and fixed infusion duration:

<table>
<thead>
<tr>
<th>Volume</th>
<th>12.0ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>24:00</td>
</tr>
<tr>
<td>Rate</td>
<td>0.50 m/h</td>
</tr>
<tr>
<td>Confirm</td>
<td>Press YES</td>
</tr>
</tbody>
</table>

a) Review the infusion summary to check that the parameters displayed match the prescription.
   - Visibly check if the volume in the syringe matches the volume displayed.
   - Check duration displayed is the duration required for the infusion.
   - Check that the rate displayed is the syringe volume confirmed divided by the duration.

To confirm infusion parameters, press YES

Resume or New Syringe?

This screen prompt displays if the programme is interrupted by alarm activation: syringe displacement and occlusion, the pump is powered off for any reason and powered on with a syringe in place and on completion of purge:

Press YES to Resume
NO For New Syringe

Pressing “YES” retains the current programme
Pressing “NO” deletes the current programme, the pump will then calculate a new programme based on the current syringe volume.

The important feature to remember is that “Resume” protects the calculated infusion rate for the current programme, so:

- If you increase the syringe volume and resume the programme/syringe, the duration of delivery will increase
- If you decrease the syringe volume and resume the programme/syringe, the duration of delivery will decrease

NOTE: Follow local policy/procedure for the appropriate option to press when this screen displays after purge.
1a. Prepare the syringe and infusion set
   Prepare syringe with drug(s) as per prescription and local policy, attach drug label, ensuring the label lies flat.

1b. Manually prime the set
   Attach prepared syringe to the infusion set/cannula and manually prime.

2. Check the pump
   Ensure that the device is clean, visually intact and appropriate for the intended use.

3. Insert the battery
   Insert the battery correctly.

4. Power on and observe Pre-Loading
   a) Before powering on ensure the barrel clamp arm is down and no syringe in place.
   b) Press and hold down the ON/OFF key.

   | T34 | Version NCAT XXX |
   | ID: (Hospital name) |
   | Pre-Loading |
   | Use NO to interrupt |
   | Occlusion mmHg |
   | Max Rate ml/h |
   | Program Lock OFF |
   | Battery Status 90% |
   | Load Syringe |

   c) Observe automatic movement of the actuator (Pre-Loading).

   d) Check information screens.

   e) Wait until the actuator stops moving and the syringe sensor detection screen (Load Syringe) displays.

5. Check battery level (%)
   a) Press the INFO key to display the info menu

   | Info Menu |
   | Battery Level |
   | Select ↑↓, Press YES |

   b) To view battery meter, press YES.

   c) Check battery level.

   Wait a few seconds for the "Load Syringe" screen to display.

6. Load and confirm the correct syringe
   a) Align syringe to fitting areas and load the syringe into the pump.

   | 20ml BD Plastipak |
   | Select ↑↓, Press YES |

   b) View the display screen to check that the syringe brand and size displayed matches the one placed into the pump.

   c) If they DO NOT match, use the ↑↓ arrow keys to scroll to the syringe brand to match, press YES to confirm.

   - If they match, press YES to confirm.

7. Review and confirm infusion programme
   a) Review pump configuration settings and wait for next screen prompt

   | Occlusion mmHg |
   | Max Rate ml/h |
   | Program Lock OFF |
   | Battery Status 90% |

   b) Visibly check if the volume in the syringe matches the volume displayed. Change if necessary, confirm by pressing YES.

   c) Change if necessary, confirm by pressing YES.

   (Example shows changing a default duration of 24 hours to a 12 hour duration).

   d) If the default duration is changed this screen displays for a few seconds

   e) The rate (calculated from the syringe volume divided by the duration) displays, check and confirm by pressing YES.

   If purge required: Press the FF key BEFORE confirming parameters. Follow all screen prompts. (Optional step, refer to local policy).

   f) Review the infusion\programme summary to check that the parameters displayed match the prescription: visibly check the volume/duration/rate, to confirm infusion, press YES.

8. Connect cannula/set to patient
   Site/connect the cannula/infusion set to the patient. (Follow local policy for the recommended cannula and set to use).

9. Start infusion
   To commence the infusion when ready to do so. press YES/START.

10. Check and confirm infusion is running
    Time Remaining 11:59
    Rate 1.0 ml/h
    20ml BD Plastipak

    a) Visually check that the infusion running screen is visible and the green light flashes intermittently.
Lock off (Prime and Load)

Before powering up the pump, ensure the barrel clamp is down

See Arrow 1

Depress the ON / OFF key

Then press the ON / OFF key until the 'Self Test 'screen appears.

- The screen will identify the pump model.
- Reference to ownership: Southern Health and Social Care Trust
ONLY use if pump is identified for use in children and neonates only.

The LCD display will show ‘Pre-loading’

During the Pre-loading the actuator always returns to the start position of the last infusion programmed. (If the actuator is not in the correct position to accommodate the newly filled syringe, leave the barrel clamp arm down and use the FF and BACK buttons on the keypad to move the actuator).
The Display Screen will ask you to LOAD the SYRINGE

- Lift the barrel clamp arm, seat the filled syringe into position at point 1, 2 and 3.

1. Barrel clamp arm – (detects size and width of barrel / secures).
2. Syringe ear / collar sensor – (detects secure loading of syringe collar).
3. Plunger sensor (detects secure loading of syringe plunger).

The pump will recognise the size and brand of syringe and ask you to confirm – If details correct – Confirm by pressing the YES button.

The pump will automatically calculate the volume / rate.

**Summary Screen will appear**

<table>
<thead>
<tr>
<th>Volume</th>
<th>20.3ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>24.00</td>
</tr>
<tr>
<td>Rate</td>
<td>0.85ml/h</td>
</tr>
</tbody>
</table>

This confirms the volume to be infused
Duration of infusion
Rate in mls/ hr
Press YES to confirm

**DO NOT ATTACH THE INFUSION LINE TO PATIENT UNTIL MEASUREMENTS / FULL INSTALLATION COMPLETE**
PRIME THE INFUSION LINE

Octopus 1 extension set with leur lock end

Length : 10cms
Priming volume:
- 0.29mls       Do not add extra fluid to the syringe to account for priming.

Connect the infusion set to the Intravenous cannula using Aseptic non touch technique
The Summary Screen will prompt to – START INFUSION?

Press YES to confirm

Summary screen will provide information on:

The Time Remaining
The Rate
And confirm that the pump is delivering

The Green LED indicator flashes every 64 seconds

To activate the Keypad lock press and hold the INFO key until a chart is displayed showing a ‘progress bar’ moving from left to right.

Hold the key until the bar has moved completely across the screen and a bleep is heard to confirm the lock has been activated.

Although the keypad lock is on, the following buttons are still active
NO / STOP, YES / START, INFO

To deactivate the keypad lock - Repeat the procedure above.
The bar will move from right (LOCK) to left (UNLOCK) and a bleep will be heard.
Lock Box  *(use is optional in the neonatal unit)*
The lock box will fit most commonly used syringe brands and sizes up to 30ml. Lock boxes are made from Polycarbonate due to its high, temperature resistance and optical properties, durability tests confirm that the overall design and construction of the T34 lock box ensures that they are fit for their intended purpose of protecting the T34 syringe pump from damage caused through normal daily use and drops within the accepted normal range of one meter.

Insert the syringe pump in to the plastic locked box and ensure that the protective plastic cover is correctly in position and that the administration line is not trapped in the box.

Carry Pouches
Disposable pouches are available but are not routinely used in the Neonatal Unit.

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Following procedure, remove apron and protective powder-free disposable latex / nitrile gloves. Wash and dry hands thoroughly.</td>
<td>To comply with Northern Ireland Regional Infection Control Manual (2008). To comply with safe technique and practice.</td>
</tr>
<tr>
<td>Ensure the patient's comfort.</td>
<td>To offer further reassurance, allay fear / anxiety.</td>
</tr>
</tbody>
</table>
## MONITORING CHECKS – CME T34 PUMPS

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the Neonatal Unit the first monitoring check should be carried out within 5 minutes after starting the syringe pump.</td>
<td>To ensure timely, efficient intervention when required re: Site maintenance. Compatibility of medicines / diluent</td>
</tr>
<tr>
<td>Observe for complications such as:</td>
<td></td>
</tr>
<tr>
<td>- Pain, swelling, redness, infection, bruising or oedema.</td>
<td></td>
</tr>
<tr>
<td>- Blood in the infusion line.</td>
<td></td>
</tr>
<tr>
<td>- Crystallisation.</td>
<td></td>
</tr>
<tr>
<td>- Disconnection.</td>
<td></td>
</tr>
<tr>
<td>- Infusion not progressing.</td>
<td></td>
</tr>
<tr>
<td>- Infusion progressing too quickly</td>
<td></td>
</tr>
<tr>
<td>- Kinks in infusion line</td>
<td></td>
</tr>
</tbody>
</table>

### Examine the Summary Screen on the pump

- It will provide information on:
  - (a) The infusion time remaining.
  - (b) The rate in millilitres (mls) per hour.

### Depress the blue INFO key Once

- It will provide information on:
  - (a) The volume to be infused.
  - (b) The volume infused.
<table>
<thead>
<tr>
<th>Depress the blue INFO key TWICE</th>
<th>The screen will display information about the percentage of battery life remaining.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPORTANT SAFETY ISSUE TO CONSIDER</td>
<td>If an infusion is to be stopped before the syringe is empty, disconnect the syringe from the patient and apply a sterile universal bung.</td>
</tr>
<tr>
<td></td>
<td>To avoid an inadvertent bolus dose</td>
</tr>
</tbody>
</table>
Pump Monitoring During Infusion

It is recommended that procedures are established for regular checks on the progress of the infusion. Check:

- For signs of physical damage to the pump and/or accessories.
- The LCD display screen to confirm the pump is still infusing.
- That the LED green light flashes intermittently (a continuous red light indicates the infusion is paused).

NOTE: The last line alternates with the syringe size and brand confirmed by the user during programming.

To view volume to be infused (VTBI), volume infused (VI) and battery level, with the infusion running:

Press **INFO** key once:

- Infusion Summary
  - VTBI: 12.0
  - VI: 0.0

Press **INFO** key twice:

- Battery Level: 90%
- Empty: Full
IN THE EVENT OF SUSPECTED EQUIPMENT MALFUNCTION

Stop the syringe pump IMMEDIATELY.
Ensure patient safety – undertake holistic patient assessment.

Using the CME T34 – Alarms – Tips on problem solving (Appendix 2) try to establish the cause / if none evident, remove the device.

- Report the issue immediately to the Consultant and / Nurse in charge and carry out any change in care plan as directed by the Medical staff in response to the infants clinical condition, (especially if the infusion has over-infused or under-infused)

- The CME device should be taken out of general use, labelled as “Faulty equipment for repair. Do not use” and left in the designated area in Neonatal for faulty equipment for collection.

- Replace the suspected device with another syringe pump from Unit stock.

- Report the fault immediately via the Electronic Fault Reporting Form available on the desk top on the unit PC or on the Home page of the Trust’s Intranet.

- Complete a Datix Incident Form

- On receipt of the Datix incident form, the nurse in charge may be asked to complete and forward a report to the Northern Ireland Adverse Incident Centre (NIAIC)

- Ensure all information relating to the incident is clearly documented in the infants care plan.
ALARMS

When an alarm is activated:
- The infusion stops
- The LED indicator light turns from green to red.
- An audible alarm sounds continuously until either the pump is paused or the problem is rectified.
- An error message appears on the display indicating the alarm cause.

TROUBLESHOOTING

<table>
<thead>
<tr>
<th>SCREEN INFORMATION</th>
<th>POSSIBLE CAUSE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occlusion or syringe empty</td>
<td>Kinks in tubing, obstruction of infusion set.</td>
<td>Remove occlusion.</td>
</tr>
<tr>
<td></td>
<td>Actuator has reached minimum travel position.</td>
<td>Restart.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inform the person in charge of care.</td>
</tr>
<tr>
<td>Syringe displaced</td>
<td>Syringe has been removed or displaced.</td>
<td>Check and confirm syringe seated correctly and resume. Inform the person in charge of care.</td>
</tr>
<tr>
<td>Pump Paused</td>
<td>Stop button pressed for more than 2 minutes.</td>
<td>To re-start press YES.</td>
</tr>
<tr>
<td>Near End of Infusion</td>
<td>15 minutes from the end of infusion.</td>
<td>Nurse / Doctor to prepare to change syringe.</td>
</tr>
<tr>
<td>End of Programme</td>
<td>Infusion complete.</td>
<td>End of program – switch off pump and inform the person in charge of care.</td>
</tr>
<tr>
<td>Low Battery</td>
<td>Battery is almost depleted.</td>
<td>Prepare to change battery.</td>
</tr>
<tr>
<td>End Battery</td>
<td>Battery is depleted.</td>
<td>Change Battery</td>
</tr>
<tr>
<td>Keypad Locked</td>
<td>Prompt; Only the STOP,START and INFO keys are accessible.</td>
<td>Disengage keypad lock if further access required</td>
</tr>
<tr>
<td>Press YES to Resume, NO</td>
<td>Prompt; The current</td>
<td>Pressing YES</td>
</tr>
<tr>
<td>for New Syringe</td>
<td>programme has been interrupted and two options are available for programming</td>
<td>resumes the current infusion. Pressing NO deletes the current programme</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>System Error. Press and hold INFO</td>
<td>Alarm; An internal system error has occurred</td>
<td>The user may be prompted to power off and restart, which may rectify the error. If error recurs; Take pump out of use. Press INFO to obtain error message. Record error code and summary of fault and return pump to designated service centre.</td>
</tr>
</tbody>
</table>
REMOVAL AND DISPOSAL OF INFUSION SET AND SYRINGE PUMP

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The infusion set should be removed by:</td>
<td></td>
</tr>
<tr>
<td>(a) A Registered Nurse</td>
<td></td>
</tr>
<tr>
<td>Empty syringes should be discarded in the purple-lidded Sharps container.</td>
<td></td>
</tr>
<tr>
<td>Any infusate not administered should be discarded in the purple-lidded Sharps container</td>
<td></td>
</tr>
<tr>
<td>The infusion site should be inspected after completion of the infusion.</td>
<td>To ensure adherence to the insertion and maintenance care bundle elements for peripheral intravenous cannulas</td>
</tr>
<tr>
<td>If the syringe pump is no longer required – the battery should be removed. If battery capacity less than 50% discard battery as per unit policy in the designated battery disposal container</td>
<td>To reduce the risk of combustion during incineration.</td>
</tr>
<tr>
<td>The device and associated equipment should be cleaned as per manufacturer’s instructions.</td>
<td>To reduce the risk of cross infection.</td>
</tr>
</tbody>
</table>

CLEANING THE PUMP

Every syringe pump must be cleaned after each patient use in accordance manufacturer’s guidance.

The outside surface should be cleaned between patients by wiping with a soft lint free cloth dampened with a solution of mild detergent, ensure any sticky residue from temporary labels applied have been removed. This should be followed by disinfection using 1000ppm solution of a chlorine releasing solution eg Actichlor Plus tablets. Apply sterile water directly to paper towel and buff rinse,drying thoroughly. (CME McKinley, 2007).

The threads of the screw that the actuator moves along can be cleaned with a small dry bristled toothbrush soaked in detergent and water to remove debris or other particles. This should be followed by disinfection if contaminated with body fluids or used in the
care of a patient with a known infection/communicable disease. It is important that any disinfectant is thoroughly rinsed off and the equipment dried prior to storage or reuse.

On completion of decontamination, and prior to being placed into storage or reused, the syringe pump should be labeled that it has been decontaminated as above and signed and dated by the individual who undertook the decontamination.

**DO NOT** clean the syringe pump with surgical spirit or abrasive cleaners.

**DO NOT** immerse in water.

Following patient use, batteries should be removed and placed in designated container for onward disposal as per hospital policy.

When not in use the syringe pump should be stored in a dry place.
REFERENCES


Good practice and Consent: Consent for Examination, Treatment or Care. DHSSPS. Department of Health, Social Services and Public Safety (2007)

National Patient Safety Agency.


Department of Health, Social Services and Public Safety (2009) Safe Management of Controlled Drugs a Good Guide to Practice in NI (DHSSPS)

www.palliativedrugs.com


Scottish Intercollegiate Guidelines network (2008) Control of Pain in Patients with Cancer. SIGN

www.palliativedrugs.com accessed August 2011
Intranet Access pathway – Home page → Directorates → Medical Equipment → Competency Elements Reviews (worked examples)

COMPETENCY ELEMENTS:

The 22 competency elements outlined below are the core training requirements that must be covered during the training of staff members in the safe use of the CME T34 syringe driver. If the staff member can demonstrate competency against each of these competency elements then the assessment grid can be completed with a ‘Y’ within each box. The staff member, trainer and ward / department manager must then sign / date the form and retain it within the staff member’s training records and the ward / department’s Equipment Management resource folder.

SECTION 1 – Start of the infusion ‘Lock Off: Prime and Load Start-up Sequence’

1. Prepare the syringe with medication, prepare the drug label. Ensure that the syringe label is signed and dated by 2 registered nurses.

2. Check the pump
   - Check device to ensure that it is clean with no signs of physical damage
   - Check to make sure there are no signs of fluid ingress
   - Check that the date on the “Next Test Due” label has not been exceeded

3. Insert the battery
4. Power on and observe pre-loading
5. Check battery level (%) – ensure a minimum of 50% battery charge at start of infusion
6. Load and confirm the correct syringe

7. PRIME / PUMP / PATIENT
   - Review and confirm infusion programme summary screen

8. Connect infusion set/cannula to patient
9. Start infusion
10. Check and confirm infusion is running

SECTION 2 – Monitor Infusion

11. Check volume infused (VI) / volume to be infused (VTBI) with infusion running
12. Check battery level with infusion running
13. Activate / deactivate keypad lock
14. Check to ensure that there are no kinks or occlusions within the infusion set. If any kinks or occlusions are identified and cannot be rectified then ensure that the infusion and the infusion set are changed.

SECTION 3 – Close Down

15. Be able to correctly close down the device
SECTION 4 – Safety Alerts / Decontamination / Incident Reporting

16. Be able to recognise alerts and be able to take appropriate action once the alert is triggered

17. Be able to recognise alarms and be able to take appropriate action once the alarm is activated

18. Ensure that you do not use a paediatric primed device within the adult setting – all paediatric devices will have a RED ALERT LINE on the control panel

19. Ensure that a lock box is correctly used and key pad is ‘locked’ once infusion is set up.

20. Understand when and how to clean / decontaminate

21. Ensure that faults are reported via the electronic fault reporting form available on the Home page of Trust’s Intranet

22. Know what to do in the event of an infusion error or device failure and know how to report an incident

ASSESSMENT OF COMPETENCY AGAINST ELEMENT

<table>
<thead>
<tr>
<th>Element</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory (Yes/No)?</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Element</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>Comments state below:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory (Yes/No)?</td>
<td></td>
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</tr>
</tbody>
</table>

I confirm that I have read and agree to comply with my roles and responsibilities as outlined within the following documents:

☐ Trust procedures for the use of CME T34 Syringe Drivers

☐ I confirm that I have also successfully completed the on line learning tool and have printed off the certificate as evidence of completion – 80% pass level required

Date of completion: ________________________________

Employee’s Signature: ____________________________ Date: ____________________________

Trainer’s Signature: ____________________________ Date: ____________________________

Line Manager’s Signature: ______________________ Date: ____________________________

Any Further Action Required: