

NIKI T34 Operating Guidelines



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NIKI T34 Syringe Driver at Home Pamphlet	

The NIKI T34 Syringe Driver is a small, portable battery operated, programmable, ambulatory syringe pump that delivers the contents of a 2 to 50ml syringe over a specified duration of time or at a given rate in millilitres per hour (ml/hr). The use of the NIKI T34 syringe pump via the SUBCUTANEOUS route is used extensively, though not exclusively, within the Palliative Care community and in-patient settings.

1. NIKI T34 Features

- Max volume 37ml
- Syringes All brands 2-50ml (Refer to Point 16)
- Battery Disposable Duracell 9 volt
- Weight with Battery 262gm
- Locked Box Can take up to a 30ml syringe

2. Safety Features of NIKI T34

- The T34 syringe is contained within a lock box.
- The NIKI T34 syringe drivers used in palliative care are pre-locked into a palliative care program over 24 hrs.
- The keypad has a “keypad lock” feature that prevents unintentional ‘power off’
- Audible and visual alarms

3. Pump Operation in a Palliative Care Setting

- Program Lock ON
- Max rate set at 5ml / hr
- Occlusion pressure set at 540mmHg
- Infusion duration is preset at 24 hrs. A clinician is required to use the code to change the duration to 12 or 48 hours if required in certain circumstances. (See Point 25 ‘Change Set Up / Duration’ and caution information)

4. Contraindications for the use of the NIKI T34

- Infusion of blood or blood products
- Infusion of insulin
- Infusion of critical medications which if stopped or interrupted, could cause serious injury
- Use in ambulatory patients who do not have the capacity to cope with the device

5. Precautions / Care of the NIKI T34

- The NIKI T34 syringe drivers used in palliative care are pre-locked into a palliative care program over 24 hrs
- Do not use the T34 pump in the presence of high-intensity magnetic fields (eg MRI)
- Only authorised service technicians are to carry out maintenance or repair
- Dropping the syringe pump may damage components. Return to qualified maintenance personnel for inspection
- Do not allow the pump to get wet. If water or fluids get inside the pump or lock box, return to qualified maintenance personnel for inspection
- Do not use harsh chemicals to clean the pump. A slightly damp cloth using a neutral solution or wipe (as endorsed by relevant facility) should be used for cleaning
- Do not use non-alkaline or rechargeable batteries
- Battery damage could occur at ambient temperatures > 50 degrees Celsius
- Remove the battery when syringe pump is not in use
- Always use luer lock syringes to ensure secure connection of the infusion set

6. Indications for use of SC medications

- When medications require continuous delivery at a controlled infusion rate
- Patient is weak/unconscious and unable to swallow oral medications
- Dysphagia
- The oral route is impracticable
- Severe mucositis and swallowing is painful
- Intractable vomiting
- Intractable pain when other routes of administration not effective
- The patient has poor GIT absorption
- The patient requires increased bioavailability of medication
- Drugs that can only be given parenterally
- The rectal route not appropriate

7. Advantages of SC administration of medications

- Smoother therapeutic plasma levels of medication (no peaks or troughs)
- Patient comfort and mobility
- Convenient 24 hour reload using NIKI T34
- Reduced need for regular injections
- Facilitated administration of adjunct medications for symptom management
- Reduced side effects of morphine metabolites by avoiding first pass through the liver during metabolism
- Increased bioavailability of medication
- Convenience of use in community settings

8. Medications

- A range of medications can be administered via continuous SC infusion
- Most commonly used medications are opioids, anti-emetics, anxiolytics and other adjuvant medications for pain and symptom management. Refer to Therapeutic Guidelines Palliative Care Version 3 or <http://www.centreforpallcare.org/assets/uploads/EMRPCCSyringeDriverfinalJuly2011.pdf>

9. Checking Medications

- One RN and a second accredited staff member are required to check medication orders and medications in the in-patient setting in order to comply with legal requirements. In the community setting it is acknowledged that this is usually not possible (NSW Health Policy Directive PD2005_105). Community staff working alone are required to double check all orders and medications to be administered via the NIKI T34.
- Ensure medication orders are legal, legible and unambiguous

10. Medication Compatibility

- Drug combinations – as a general rule it is preferable to limit the combination of medications to 2-3 compatible agents. There is evidence to support the combination of 4 medications with close assessment for adverse skin reactions or crystallisation of medication mixture
- For specific information regarding medication compatibility refer to Therapeutic Guidelines – Palliative Care Version 3 Page 367 or
 - <http://www.centreforpallcare.org/assets/uploads/EMRPCCSyringeDriverfinalJuly2011.pdf>
 - www.pallcare.unimelb.edu.au/research/resources/syringe-driver-medication-guide

- www.pallcare.info
- www.palliatiivedrugs.com

11. Opioid Calculations

A number of opioids can be administered subcutaneously and there are factors to consider when converting particular opioids from oral to parenteral route. Eg SC administration of morphine is generally 3 times stronger than oral administration. Therefore the 24 hour subcutaneous dose will usually be 1/3 (one third) of the 24 hour oral morphine requirements.

Refer to Therapeutic Guidelines Palliative Care Version 3 for information on other opioids or on CIAP refer to eTG Complete - Palliative Care (2010) → Pharmacological treatment of pain in patients receiving palliative care: using opioids → Parenteral opioids → Factors to consider when converting to parenteral opioids (Box 10.17)

An on-line Opioid Calculator is also available on the NSW Cancer Institute eviQ website at www.eviq.org.au. This tool allows accurate conversion from one opioid to an approximate equianalgesic dose of another opioid, however, individual assessment of the patient remains paramount.

12. Loading Dose

The patient may require a SC bolus dose of opioid at the same time the syringe pump is commenced. This will provide analgesic cover until the morphine in the syringe driver takes effect. The 2nd line will then provide SC access for other SC and breakthrough medication. Flush between medications with diluent.

13. Management of Breakthrough Pain

- The NIKI T34 is not to be used for breakthrough boost dosing. When a continuous infusion is commenced, obtain orders for breakthrough / prn SC analgesia to be administered via a SC butterfly (2nd line). The patient's breakthrough requirements can be easily calculated and if required, the combined breakthrough doses can be added to the current dose of medication in a new infusion
- The Palliative Care Therapeutic Guidelines Version 3 suggests breakthrough doses of opioids should be 1/6 – 1/12 (one sixth to one twelfth) of the 24 hour opioid dose. An individual pain assessment is recommended, and the lower dose / slower titration considered in the elderly or patients with renal impairment.
- If an increase in medication is prescribed, extra medication cannot be added to the current infusion. A new syringe containing the new medication is required

14. Diluents

- Evidence supports the use of either water for injection or normal saline, although normal saline is the most commonly used diluent in Australia. Water for injection is recommended as the diluent for cyclizine.
- For specific diluent requirements refer to <http://www.centreforpallcare.org/assets/uploads/EMRPCCSyringeDriverfinalJuly2011.pdf> or Therapeutic Guidelines Palliative Care Version 3 page 368.
- This policy states that the fluid volume in the 20 ml syringe will be drawn up to 17 -18mls depending on the brand of syringe. Eg. You have 8mls of medication in the syringe, add diluent up to 17-18 volume. (Refer to Point 16 for more information about syringe brands).

15. Equipment

- NIKI T34 syringe pump
- Lock box for NIKI T34
- Carry pouch
- 9 volt Duracell alkaline battery (plus spares as one battery will last 4 to 7 complete infusions depending on infusion set-up and parameters)
- .35 ml Luer lock micro volume extension tubing (CODAN Brand)
- Saf-T-Intima cannula
- * Luer lock 20 ml syringe - minimum size (refer to Point 16)
- Filter drawing-up needle
- Small transparent adhesive dressing (eg Opsite or Tegaderm)
- Alcohol swab / skin prep swab
- Medication orders
- Medication label
- Medications
- Diluent
- Sharps container
- Scissors to trim excess hair
- Any additional equipment

16. * Syringe Size and Extension Tubing

On day one or when changing SC sites and priming of a new line, the infusion will be completed before the 24 hr period. Large volume tubing and a small volume syringe can result in the infusion finishing 2-3 hrs before the 24 hour period each time the line is primed. To prevent this occurring when priming, this guideline and overarching policy states that the NIKI T34 must be used in conjunction with a **.35ml micro volume tubing (CODAN Brand) and a 20ml (minimum) luer lock syringe** drawn up with diluent to the maximum fluid volume that can be placed into the pump.

20ml BD Plastipak :	17ml fluid	20ml BD Precise:	18ml fluid
20ml Terumo:	18ml fluid		

In some circumstances when a 30ml syringe is required, the volume will be 22-24 ml depending on the syringe brand. The lock box can be used on syringes up to 30ml.

17. Selecting a Site for SC Needle Insertion

- Discuss site preferences with patient
- Site location depends on availability of subcutaneous tissue, patient mobility and pressure care needs
- Avoid bony prominences, areas of broken skin or infection, recently irradiated areas, tumour sites, skin folds, scarred areas, joint proximity, areas of poor circulation, ascites, oedema and lymphoedema, or areas of compromised lymph drainage (eg mastectomy)
- Care is required if the patient is extremely thin/cachectic to avoid puncturing organs when inserting needle
- Rotate site at least 3-4 cm when reinserting needle
- Preferred sites include * Abdomen (away from midline) * Intercostal spaces above breast (except in cachectic patients) * Anterior aspect upper arm * Scapula * Thigh

18. SC Needle Insertion Procedure

NB. Do not connect the patient to the infusion line until the syringe pump has been programmed for this infusion

1. Check patient ID and allergies
2. Explain procedure to patient and obtain verbal consent
3. Maintain patient privacy
4. Wash hands and use an aseptic technique
5. After choosing site, clip hair if required
6. Swab area of skin with alcohol swab
7. Insert Saf-T-Intima needle into SC tissue at 30-40 degree angle
8. Remove inner needle leaving cannula in-situ
9. Loop .35ml extension tubing twice to prevent accidental dislodgement
10. Cover with transparent dressing
11. Record date and time of needle change on transparent dressing

NB. Do not 'piggy-back' SC fluids or other infusions into the same line as the syringe pump as the syringe pump infusion flow will be interrupted.

19. SC Site Care

- Assess infusion site every 4 hours in an inpatient facility and daily in community setting
- Unlike IV sites, only change SC sites when required eg if red, hard, swollen, bleeding, leaking or painful as these factors hinder absorption
- Review frequency of site changes if patient is at risk of infection due to immunosuppression
- Use new tubing for each re-siting. Use of needleless system (eg Saf-T-Intima) prolongs site duration

20. Patient and Family Education

- Explain basic principles, indications, care of pump and how to seek assistance if alarm sounds
- Provide patient and family with 'NIKI T34 Syringe Driver At Home' pamphlet

21. Getting the Pump Started

21.1 Draw up Medication and Attach Syringe to Infusion line

NB. Do not connect the patient to the infusion line until syringe pump has been programmed for this infusion

1. Check medication orders and load syringe with medication as prescribed
2. After the syringe is loaded with medication, attach the syringe to the infusion set and Saf-T-intima. Do not prime at this stage
3. When attaching medication label to syringe, avoid the area of the syringe that will be near the barrel clamp (refer to Figure 2) as labels located near the barrel clamp can result in incorrect syringe recognition due to changes in the syringe's external diameter. The label needs to be as close to the syringe tip as possible

21.2 Fitting the Battery

1. Slide the battery compartment cover at the back of the NIKI T34 syringe pump
2. Push the 9 volt alkaline battery into the compartment ensuring that the + / - contacts are aligned as shown on the label inside the compartment. Do not force the battery.
3. Replace the cover

21.3 Turning on the NIKI T34 Syringe Pump

1. Ensure Barrel Clamp Arm (A in Figure 2) is down.
2. Turn the pump on by pressing and holding **ON/OFF** Key. The software version is displayed on the LCD screen
3. The screen will show PRE-LOADING and the actuator will start to move. The actuator will move to the same position as the previous syringe. Wait until it stops moving and the syringe sensor detection screen appears.
4. Check Pump settings when second screen appears:
 - Occlusion alarm pressure setting
 - Max rate
 - Program Lock **ON**,
 - Battery status eg 98%



21.4 Check the battery before loading the syringe

1. Before loading the syringe, Press **INFO** key
2. BATTERY LEVEL will appear. Press **YES** to confirm
3. Verify sufficient battery charge is available to complete program. If not, change battery. There are many variables that will affect the battery life, such as syringe size, volume of infusion, site etc. It is recommended that in the community setting, the battery is changed at 18-20%. In the in-patient setting, the battery can run down as staff are available to change when alarm sounds.

NB A new 9 volt battery will last 4 - 7 full deliveries depending on infusion set up and parameters. Multiple spare batteries must be available at all times



21.5 Loading the Syringe into the Pump



- The syringe must be loaded into the pump prior to connecting the syringe to the patient
- There are 3 sensor points that must be in contact with the syringe in order for the syringe to be loaded correctly and for the pump to later identify the syringe details

1 - Barrel clamp arm

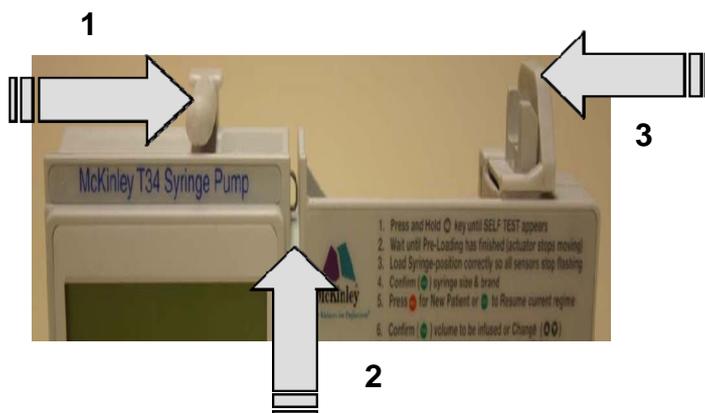
Detects size/width of barrel and secures

2 - Syringe ear/collar sensor

Detects secure loading of syringe collar

3 - Plunger sensor

Detects secure loading of syringe plunger.



- If the actuator is not in the correct position to accommodate the syringe, leave the barrel clamp down and use the **FF** or **BACK** on the keypad to move the actuator to the required position. Forward movement of the actuator is limited, requiring repeated presses of the **FF** key when moving the actuator forward. Backwards movement is not restricted. Do not force the actuator manually.
- Lift the barrel clamp arm by gently lifting it up as far as it goes and then turning the arm 180°, then place in the down position. Load the syringe into the pump. Place the collar/ear and plunger of the syringe into the pump first. As you correctly place each point of the syringe, the flashing indicator for that sensor becomes solid on display.
- Return the barrel clamp arm to its correct alignment and lower the barrel clamp arm. If the syringe is correctly loaded the syringe graphic will become solid (ie no flashing components)

22.6 Syringe Detection and Confirmation

1. Check the screen display to ensure that the pump has correctly identified the syringe size and brand. If the syringe brand display is not correct, use the **UP** or **DOWN** arrow keys to scroll between brands or syringes of similar dimensions. This will only occur if the syringe selected has dimensions within +/- 3% of another commonly used brand
2. Press **YES/START** to confirm



22.7 Check Infusion Details

1. The screen will ask you to check infusion details (volume to be infused (VTBI), duration and infusion rate)
2. Press **YES/START** to confirm that details are correct.



3. The screen then prompts you to Start Infusion?
4. **Before starting the infusion, the infusion line needs to be Purged / Primed**

Day 1 or when changing the site/line:

Day 2 and thereafter:

If this is day one or you are changing the SC site and priming a new line, you need to Purge/Prime the line before starting the infusion. **You will not be automatically promoted to Purge (Go to Point 22.8)**

If this is day two or more, Press **YES/START** to commence the infusion once you have connected the new syringe to the existing line, as the line is already primed.

22.8 Priming / Purging the Line

Using the 0.35ml tubing and the .22ml dead space in the Saf-T-Intima, the prime volume is approximately 0.57ml. (The NIKI T34 has a maximum prime is 2.0ml).

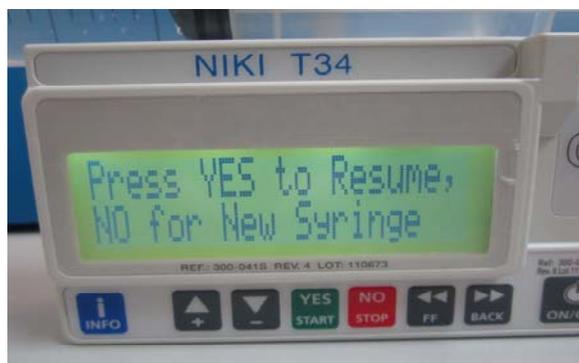
- 1 Check patient is NOT connected to syringe pump
- 2 Press **FF** button once. Screen will indicate "PURGE"



- 3 Press **YES** to confirm you want to prime / purge
- 4 "Purge 0.00ml" will appear on screen
- 5 While watching fluid move through the line, hold down **FF** button until a drop of medication can be seen at the end of the line. Immediately release the **FF** button to stop prime/purge. The screen also indicates the volume being purged
- 6 Press **STOP** to return to programming screens when prime / purge is complete
- 7 Pump will ask you again to confirm syringe size and brand. Press **YES** to confirm

22.9 YES to Resume or NO for New Syringe

1. Pump will ask YES to RESUME, NO for NEW SYRINGE?



Caution: It is critical the implications of selections on this screen are understood

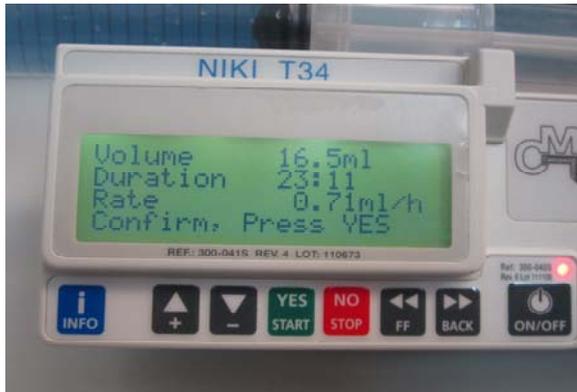
- The NIKI has a program lock duration of 24 hours. Thus:
- If **YES to RESUME** is selected the pump will ignore the volume in the syringe and continue at the previous rate
- If **NO for NEW SYRINGE** is selected it will divide the volume in the current syringe by 24hrs

Therefore:

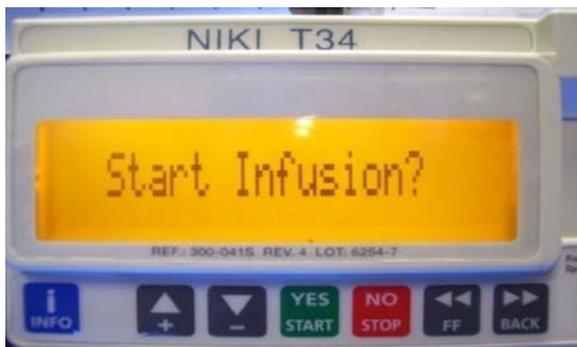
- Press **YES to RESUME** on Day One or when priming a new line, or if there is an alarm for example after 16 mls has been infused of a 20ml infusion. After the issue has been rectified, **YES to Resume** should be selected. (If NO is selected the remaining 4ml will be divided by 24 giving a new rate).
- Press **NO for New Syringe** if it is day two or more and you are not priming or if the pump was stopped and turned off before the last program reached End Program). *Hint: Turning the pump off when changing syringes prevents this screen from appearing after Day One.*

22.10 Check Infusion Details

1. Check infusion details on screen.
 - Volume should be reduced by the amount of purge and the
 - Duration will be correspondingly lower (eg 23.5 hrs for .5ml prime using a 20ml syringe).
 - Rate SHOULD be identical to that shown when syringe was first placed on the pump
2. Press **YES / START** to confirm the pre-set programmed infusion parameters



3. Pump prompts START INFUSION?



22.11 Before starting infusion, connect the patient to the infusion

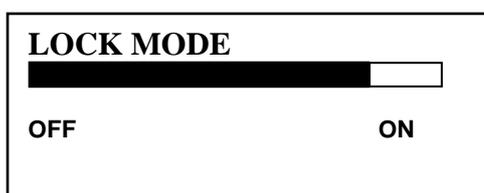
Before starting the infusion connect the patient to the primed 0.35 ml extension tubing and Safe-T-Intima

22.12 Commence Infusion

Once patient is connected, Press **YES / START** to commence infusion

22.13 Lock the Keypad

1. With the pump infusing, press and hold the **INFO** key until a chart is displayed showing a bar moving from left to right. A beep will sound when keypad is locked and infusion summary will be displayed
2. Confirm the lock has been activated by pressing any grey key
3. To turn the lock off repeat this procedure. The bar will move from right (ON) to left (OFF) and a beep will be heard to confirm
4. Do not let patients / carers see how you lock / unlock pump



22.14 Check Screen Display while Infusing

The screen will display Time Remaining (top line), Infusion rate (central line), and the bottom line will alternate between syringe size and brand and <<<<<<<<<< Pump Delivering

Time Remaining 23.57 Rate 0.5ml/hr <<<<<<Pump Delivering

Time Remaining 23.57 Rate 0.5ml/hr 10ml BD Plastipak

23. Alarms and Alerts

All alarms are audible and visual. The screen will indicate which alarm has been triggered and what action is required. Below are possible causes for alarms:

- | | |
|--|------------------------|
| 1 Occlusion or the syringe is empty | 2 Syringe is displaced |
| 3 Near end of infusion (15mins prior to end) | 4 Infusion is complete |
| 5 battery is running low (15mins before end) | 6 Battery is flat |
| 7 Pump paused too long in programming | 8 Technical fault |



24. Locked Boxes and Pouches

- The NIKI T34 is to be enclosed in a locked box when in operation. The lock box can accommodate up to a 30ml syringe. 2 keys to the lock box are provided. Spare keys can be cut
- The battery can be changed when the pump is in the lock box
- The screen can be checked when the pump is the carry pouch by lifting the velcro flap

25. Change Setup / Duration

The main reason a clinician may need to 'change the set-up' is to alter the duration of infusion from the pre-set duration of 24 hours, to either 48 hours or 12 hours.

CAUTION: If you have altered the duration rate from the pre-set 24 hour rate, place notification on the pump indicating the duration has been altered. When the altered duration is no longer required for that patient, IMMEDIATELY re-set duration rate back to 24 hour. Refer to Point 28 for change set-up instructions.

26. Training and Education / On-Line Training

- Registered Nurses are required to attend training and be deemed competent before using the NIKI T34
- All staff using the NIKI T34 will have completed the on-line training as a minimum requirement prior to attending NIKI T34 education and training sessions
<http://www.mckinleymed.co.uk/online-training/> Password rem2008

27. Quick Guide for 24 Hour Infusion Using NIKI T34 Syringe Driver

For 24 Hour Infusion with Program Lock function ON

DAY 1 or WHEN PRIMING NEW INFUSION

Do not connect patient to infusion line until programming complete

1. Using a 20ml syringe, draw up medication. Add diluent up to 17ml for BD Plastipak and 18mls for BD Precise or Terumo depending on syringe brand
2. Label syringe ensuring label is as close to syringe tip as possible
3. Insert battery if new infusion
4. Ensure barrel clamp is down.
5. Turn pump on by holding **ON/OFF** key. The actuator will move to same position as previous syringe
6. Check pump settings when screen appears
7. Check battery charge by pressing **INFO** key. Change battery if insufficient charge.
8. If actuator is not in the correct position to accommodate syringe, leave barrel clamp down and use the **FF** or **BACK** keys to move actuator
9. Lift barrel clamp and turn arm 180°, then place in the down position. Load syringe into pump, placing collar of syringe plunger first.
10. Return barrel clamp to its correct alignment and lower barrel clamp arm.
11. Check screen display for syringe brand identification and size. Use **UP** or **DOWN** to scroll between brands. Press **YES/START** key to confirm
12. To prime new line, ensure patient is not connected to infusion and press **FF** button once.
13. Press **YES** to confirm prime/purge
14. While watching fluid move through line, hold **FF** button until drop of medication can be seen at end of line. Release **FF** button to stop prime/purge
15. Press **STOP** to return to programming screens
16. Pump will ask **YES** to resume or **NO** for new syringe. Press **YES**
17. Check infusion details (volume to be infused, duration and rate) on screen. Press **YES/START** to confirm
18. Screen will ask START INFUSION?
19. Attach patient to infusion line
20. Press **YES/START** to commence infusion
21. To lock keypad, hold **INFO** key until a bar on screen and beep sound indicates the lock mode is activated

DAY 2, 3 etc

1. Draw up medication and diluent in syringe. Add diluent up to 17ml for BD Plastipak and 18mls for BD Precise or Terumo depending on syringe brand
2. Label syringe ensuring label is as close to syringe tip as possible
3. Turn pump off by pressing **ON/OFF**
4. Remove old syringe and attach new syringe to infusion line
5. Turn on pump by pressing **ON/OFF**
6. Actuator will move to same position as previous syringe, so if same syringe size there is no need to alter. Press **FF** or **BACK** to align actuator to fit syringe if required
7. Lift barrel clamp and turn arm 180°, then place in the down position. Load syringe into pump, placing collar of syringe plunger first.
8. Return barrel clamp to its correct alignment and lower barrel clamp arm.
9. Check screen display for syringe brand identification and size. Use **UP** or **DOWN** to scroll between brands. Press **YES/START** key to confirm.
10. If screen '**YES** to resume or **NO** for new syringe' appears, Press **NO** to program the new syringe).
11. Check data on screen. (Volume, duration and rate). Press **YES** to confirm
12. Screen will ask START INFUSION? Press **YES/START** to commence

28. Quick Guide for 12 or 48 Hour Infusion Using NIKI T34 Syringe Driver

For 12 or 48 Hour Infusion with Program Lock function ON
Refer to Point 25 Caution Details in Guidelines

DAY 1 or WHEN PRIMING NEW INFUSION

Do not connect patient to infusion line until programming complete

1. Using a 20ml syringe, draw up medication. Add diluent up to 17ml for BD Plastipak and 18mls for BD Precise or Terumo depending on syringe brand
 2. Label syringe ensuring label is as close to syringe tip as possible
 3. Insert battery if new infusion
 4. Ensure barrel clamp is down.
 5. Turn pump on by holding **ON/OFF** key. The actuator will move to same position as previous syringe
 6. Check pump settings when screen appears
 7. Check battery charge by pressing **INFO** key. Change battery if insufficient charge.
 8. If actuator is not in the correct position to accommodate syringe, leave barrel clamp down and use the **FF** or **BACK** keys to move actuator
 9. Lift barrel clamp and turn arm 180°, then place in the down position. Load syringe into pump, placing collar of syringe plunger first.
 10. Return barrel clamp to its correct alignment and lower barrel clamp arm.
 11. Check screen display for syringe brand identification and size. Use **UP** or **DOWN** to scroll between brands. Press **YES/START** key to confirm.
 12. Screen will show infusion details (volume, duration/rate). You want to change the duration of infusion from 24 hr to 48 hr.
 13. Press **INFO** key
 14. Press **▲** arrow
 15. ? Change Set Up – press **YES**
 16. Enter Set Up code: **99** using arrows. Press **YES**
 17. Press **▲** arrow to Default Duration. Press **YES**
 18. Set time. 12:00 or 48:00 hour syringe driver using **▲** arrow. Press **YES**
 19. Use **▲** / **▼** arrows to Exit. Press **YES**
 20. Syringe type. Press **YES**
 21. Screen will ask YES to RESUME or NO for NEW SYRINGE. Press **NO**
 22. Check data on screen. Duration should now read 48 hrs
 23. Press **YES** to confirm
 24. To prime new line, ensure patient is not connected to infusion and press **FF** button once.
 25. Press **YES** to confirm prime/purge
 26. While watching fluid move through line, hold **FF** button until drop of medication can be seen at end of line. Release **FF** button to stop prime/purge
 27. Press **STOP** to return to programming screens
 28. Pump will ask **YES** to resume or **NO** for new program. Press **YES**
 29. Check infusion details (volume to be infused, duration and rate) on screen. Press **YES/START** to confirm
 30. Screen will ask START INFUSION? Press **YES/START** to commence, immediately followed by **NO/STOP** so that you can attach patient to infusion
 31. Attach patient to infusion line
 32. Press **YES/START** to commence infusion
 33. To lock keypad, hold **INFO** key until a bar on screen and beep sound indicates the lock mode is activated
 34. **Place notification on pump that duration is set at 48 or 12 hrs. Immediately re-set to 24hr duration when this rate is no longer is required for that patient.**
- (Con't over page)

DAY 2, 3 etc

1. Draw up medication and diluent in syringe. Add diluent up to 17ml for BD Plastipak and 18mls for BD Precise or Terumo depending on syringe brand
2. Label syringe ensuring label is as close to syringe tip as possible
3. Turn pump off by pressing **ON/OFF**
4. Remove old syringe and attach new syringe to infusion line
5. Turn on pump by pressing **ON/OFF**
6. Actuator will move to same position as previous syringe, so if same syringe size there is no need to alter. Press **FF** or **BACK** to align actuator to fit syringe if required
7. Lift barrel clamp and turn arm 180°, then place in the down position. Load syringe into pump, placing collar of syringe plunger first.
8. Return barrel clamp to its correct alignment and lower barrel clamp arm.
9. Check screen display for syringe brand identification and size. Use **UP** or **DOWN** to scroll between brands. Press **YES/START** key to confirm. (If pump was stopped and turned off before last program reached End Program, the RESUME prompt screen will appear. Press **NO (for NEW SYRINGE)**).
10. Check data on screen. Volume should read 48 hrs.
11. Screen will ask START INFUSION? Press **YES/START** to commence
12. **Ensure that notification is on pump indicating that duration is set at 48 or 12 hrs. Immediately re-set to 24hr duration when this rate is no longer is required for that patient.**