Lancashire & South Cumbria NHS Foundation Trust

Syringe Pump Policy and Procedure

for use in the palliative care of adults at end of life

We are LSCft

Document Governance

Ratified Date	26/03/2021	**Version No**	V.1	**Expiry Date** *Max. 3 years from ratification*	26/03/2024
Reason(s) for change (if not new at this edition)					
New policy – unifying various network procedural documents					

Equality Impact Assessment		**MCA compliance declaration**		**NICE guidance**	
Approved ☒	Does not apply ☐	Compliant ☒	Does not apply ☐	Identified ☒	Does not apply ☐

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Document Type:	Policy	**Reference No:**	CL056	**Document level:**	Trust wide
Document purpose:	To provide a clear governance framework to ensure a safe and consistent approach to the use of the Ambulatory Syringe Pump in palliative and end of life care				
Applicable to	All registered staff who deliver care to adults who require symptom management and palliative care				

People/Groups Consulted:	End of Life Steering Group Lead Nurses
Governance oversight group (if applicable)	Drugs & Therapeutics Committee
Approval Group:	Patient Safety & Effectiveness Sub Committee

Parent Policy	This is the parent policy
Other documents to be read in conjunction	Syringe pump Protocol and Training Pack for Trust preferred device. National Patient Safety Agency- Promoting safer use of injectable medicines – 2007 National Patient Safety Agency NPSA/2008/RRR05 - Reducing dosing errors with opioid medicines July 2008 LSCFT Medicines Management Policy (PHA 001) LSCFT Procedure for the Management of Controlled Drugs (PHA 058) LSCFT Procedures for the Administration of Medicines (PHA 057) LSCFT Procedure for the Prescribing, Preparation and Administration of Injectable Medicines (PHA 002) LSCFT Mental Capacity Act Policy (CL048) Professional Guidance on the Administration of Medicines in Health Care Settings, Royal Pharmaceutical Society, Jan 2019 Overarching IPC Policy (IPC001)

Table of Contents

Appendices

1.0 Introduction and Purpose

A Syringe Pump is a portable battery operated device, which provides a minimally invasive route of medicine administration. It is well-established practice in the care of people with terminal illnesses, and/or with palliative care needs, to use syringe drivers in the control of symptoms.

The Trust recognises that the effective use of syringe pumps can enhance quality of life and can often enable people to be treated in their own home, other community settings or inpatient units promoting effective symptom management and patient comfort. They are used within Lancashire and South Cumbria Foundation Trust (LSCFT) to deliver continuous subcutaneous infusions (CSCI) of medicines for adults requiring symptom management and palliative care.

2.0 Scope

This policy aims to promote and support safe practice across the services provided by LSCFT where syringe pumps are used, to maintain consistency in the standard of care provided to people requiring the administration of anticipatory medicines and medicines via CSCI within the sphere of palliative care.

Employees whose practice is covered by this policy are defined as Registered Nurses and must be trained and assessed as competent in all aspects of this policy, its supporting procedure and local guidance.

3.0 Definitions

Syringe Pump	A small portable battery driven pump which continuously administers medication in to a subcutaneous site over a given period of time
Palliative care	Active holistic care of patients with advanced progressive illness.
CSCI	Continuous Subcutaneous Infusion is an infusion of medicine delivered over 24 hours through a needle placed just under the skin (sub-cutaneous).
SC	Subcutaneous- situated or applied under the skin
CDAO	Accountable Officer for Controlled Drugs
LSCFT	Lancashire and South Cumbria Foundation Trust
RN	Registered Nurse

4.0 Duties

4.1 Chief Executive

The Chief Executive as the Accountable Executive Officer has overall responsibility for ensuring the implementation of effective systems and processes in relation to providing safe administration of medicines via a syringe pump and for meeting all statutory requirements.

The Chief Executive delegates executive responsibility to the Director of Nursing and the Chief Pharmacist.

4.2 Chief Nurse and Quality Officer

The Chief Nurse and has responsibility for:

a) The Trust's commitment to meet relevant legislation, standards and responsibilities in relation to providing safe systems for the administration of medicines via a syringe pump.
b) Examining any resource implications that need to be addressed Trust wide to implement the syringe pump policy
c) Providing assurance to LSCFT Trust Board of compliance with this policy.

4.3 Clinical Directors

Clinical Directors have responsibility for ensuring the syringe pump policy is promoted and implemented within their area of responsibility by:

a) Ensuring that all areas give priority to safety.
b) Ensuring that any risks associated with use of syringe pumps are included on risk registers and action plans are implemented and monitored.
c) Discussing with senior managers any issues, which require significant expenditure, and including these on a capital development programme, as appropriate.

4.4 Senior Operational and Service Managers

Have responsibility for effectively implementing the syringe pump protocol in their areas of responsibility by ensuring that:

a) Risk assessments are documented and appropriate actions agreed and undertaken to address identified risks.
b) Residual risks associated with syringe pump use are recorded onto risk registers as per Risk Management Policy.
c) Arrangements are made for all staff to be released to attend appropriate training, on induction and updates as set out in the training needs matrix.
d) Where services are provided by agencies/ Trusts outside the Trust Partnership working arrangements are established with roles, responsibilities, training provision and practice agreed in respect of compliance with relevant legislation and current best practice
e) Providing assurance to the Network Governance Groups of compliance with the procedure.

4.5 Chief Pharmacist

It is the responsibility of the Chief Pharmacist to ensure compliance with all aspects of the policy relevant to the provision of pharmaceutical services by monitoring and auditing of the service provision.

The Chief Pharmacist is the Accountable Officer for Controlled Drugs (CDAO) for the Trust. The CDAO must monitor the use of controlled drugs within LSCFT and take appropriate action where necessary. The CDAO is responsible for ensuring the safe and effective use and management of controlled drugs within the Trust and provides assurance to the Board that the CD regulations are being complied with.

4.6 Ward/Team Managers

Ward/Team Managers are responsible for

a) Ensuring that all staff members are aware of this policy, understand how to apply it and adhere to it
b) Ensuring that all staff access training appropriate to their role and responsibilities
c) Ensure competency assessment of staff
d) Ensure all staff are aware to any concerns or discrepancies through the appropriate channels.

4.7 All staff

All staff, including Bank and Agency staff are responsible for ensuring they are familiar with this policy, know where to locate it, are compliant with it and work within their own competencies/ scope of practice.

Registered nurses are accountable for ensuring their practice is evidence based and taking appropriate action to ensure they are competent when using the syringe pump for palliative care in accordance with The Code: Professional standards of practice and behaviour of nurses and midwives (2015). This includes seeking support from their line managers and completing appropriate training.

4.8 LSCFT Drugs & Therapeutics Committee

The Drugs and Therapeutics Committee (D&T) is responsible for:

a) The ratification and review of this policy.
b) Providing assurance to the Executive Quality Committee that the policy has been implemented and is being appropriately applied.

5.0 The Policy

A syringe pump is a small, lightweight, robust, battery operated ambulatory syringe pump designed to deliver medication by continuous subcutaneous infusion. There are many models available and the Trust specifies which one(s) is recommended for use in its services: see the associated Syringe Pump Procedure for details of current recommended model.

A recommended model must comply with the features in MHRA (2003), IEC standards (1998) and NPSA (2010) requirements to ensure the safety of infusion pumps.

Indications for Use of a Syringe Pump

A continuous subcutaneous infusion of medicines should only be started in the last hours or days of life if it is indicated for symptom management. Not all dying patients will require medicines via a continuous subcutaneous infusion; pain breathlessness, agitation and excessive respiratory secretions are recognised symptoms.

Subcutaneous drug infusion using portable syringe pumps has had a positive impact on patient comfort in palliative care. It permits the continuous delivery of a range of drug therapies at a predetermined rate via the subcutaneous route at any stage during the disease pathway.

General points for the use of syringe pumps (Appendix A) should be reviewed alongside locality specific guidance for symptom management (Appendix B,C,D)

The decision to administer medication via a syringe pump needs to be taken by the multi-professional team in consultation with the patient and carer and documented in the patient's care record.

Other methods of administration should be considered prior to choosing the subcutaneous route, e.g. oral, transdermal, rectal or sublingual and may be considered as part of ongoing therapy with a pump.

If a decision is made to use a syringe pump, it must be remembered that it will take 4-6 hours for medication to reach therapeutic levels. If the patient's symptoms are well controlled then a loading dose is not necessary. If the patient's symptoms are not controlled, consider administering a subcutaneous breakthrough dose of the medication as prescribed.

It is not usual practice for LSCFT to loan syringe pumps to other care providers. If such a request is received, staff should consider other route of support e.g. local hospice teams. However if support is still required LSCFT staff will need to provide overall care of the person in relation to the syringe pump management. An incident report should also be completed.

Benefits in the use of McKinley T34 Syringe pump:

•Avoids peaks and troughs of episodic administration

•Permits appropriate control of symptoms, without toxic effects of peaks and troughs of episodic medication

•The ability to infuse a larger volume or combination of drugs via one route

•Accurate infusion times

•Usually reloaded every 24 hours

•Portable and allows mobility and independence

Disadvantages in the use of the McKinley T34 Syringe Pump:

•Inflammation or infection may occur at the site of the cannula insertion and may impede absorption and rate of delivery of drugs

•In cachexic patients or those on long-term infusion, skin site availability may be an

issue

•Drug/patient and drug/diluent incompatibility

•Syringe pump failure

•Precipitation of medicines can occur

Communicating with Patients

Prior to starting a syringe pump its use should be fully discussed with the patient (where possible) and his/her family/carers and documented in the patients care plan. This should include the:

- Reason why a CSCI is the preferred route
- Explanation re what a syringe pump is and how it works
- Indication for each drug to be delivered via CSCI
- Intended benefit, and possible side effects
- Monitoring of the response to the CSCI

The benefits and risks of syringe pumps should be explained and informed consent for administration sought, and the relevant patient information leaflet shared.

Staff should access language line and interpretation if the patient does not speak English.

If the patient lacks the capacity to consent to medication via a CSCI, then a Best Interest decision must be used to guide treatment. Use in conjunction with the Trust's consent policy, professional guidelines (NMC 2018) and the Mental Capacity Act (2005).

It must be remembered that setting up a syringe pump may be routine for the clinician but it may be a frightening new experience for the patients/family and the carers

Verbal and written information should be provided which includes:

•Telephone numbers for patients in their own homes of who to contact in/out of hours and in an emergency.

•Leaflet – 'LSCFT 'Information about your Continuous Subcutaneous Infusion'

The setting up of the T34 syringe pump should only be undertaken by, or under the supervision of, an appropriately trained practitioner.

Training for Staff

Competency to set up and administer medicines via syringe pumps is assessed and supervised by a competent practitioner with current relevant clinical practice experience. It is the responsibility of the practitioners to be competent and keep up to date in the use of the syringe pump.

Syringe Pump Maintenance

The syringe pump is designed for ambulatory use and should withstand everyday handling.

If the pump is dropped onto a hard surface, or is suspected of being dropped/damaged, subjected to excessive moisture, humidity or high temperature, the pump should be removed from service and returned to medical engineering to allow the operation and calibration to be checked.

Syringe Pumps must be serviced at least annually to ensure their function is maintained. A record of servicing must be maintained for each individual pump at team level.

Cleaning and Decontamination

After each patient use the pump and lock box must be cleaned thoroughly with a slightly damp lint free cloth and detergent and dried. The pump screw and guide rods should be gently brushed to remove any dust/debris. A single use brush should be used e.g. soft toothbrush. This should be either decontaminated or discarded after use.

Cleaning and decontamination should be carried out according to local procedures and the operation manual. The pump or any part must not be immersed in water or any other solution as this may damage the components.

If heavily contaminated, excess debris should be cleaned from the pump, then carefully sealed, and labelled contaminated and returned for cleaning with details of contamination to commissioned provider for servicing/maintenance.

Incident reporting

LSCFT has a system in place to monitor and report incidents involving syringe pumps and staff should be familiar with the local incident reporting system (DATIX) and relevant documentation.

All incidents must be investigated and findings logged via the Datix system.

6.0 The Procedure

The McKinley T34 syringe pump

This procedure applies to the use of the McKinley T34 (second Ed) Syringe Pump which is the recommended model for use within LSCFT and is applicable to all nursing staff who provide care to patients requiring CSCI. The McKinley T34 Syringe Pump is a portable battery operated device for delivering medication by continuous subcutaneous infusion (CSCI). A CSCI provides a safe way of drug administration to maintain symptom control of palliative care patients who are unable to take oral medication or require a constant therapeutic infusion. The effective use of CSCI can enhance the quality of life by enabling patients to be treated in their home or other community settings with their symptoms well controlled.

The McKinley T34 syringe pump is most commonly used to deliver one, two or three medicine combinations at a predetermined rate subcutaneously over a 24-hour period

Event Log

The T34 provides an event log, which shows a record of pump status (volume infused, rate etc.).

• Press INFO key and scroll to event log.

• Press YES to select.

• The screen will now show the most current event alarm date, time etc. Use UP/DOWN keys to scroll through events to find events of interest.

• Press INFO on any chosen event displays further data regarding the event.

• A full history of events can be downloaded by Medical Engineering for reference if there is an area of concern.

The McKinley T34 is calibrated in millilitres per hour (ml/hr). The standard delivery period for a continuous subcutaneous infusion in palliative care is 24 hours. The McKinley T34 pumps are programmed for use in adult palliative care to deliver the 'delivery volume' as displayed by the pump over 24 hours. The duration is locked therefore the user cannot change it.

This simplifies use and prevents everyday users having to repeatedly confirm or change common set up parameters whilst setting up the infusion therefore reducing the risk of errors. The pump calculates the volume, applies the pre-set duration (24 hours) and calculates the appropriate rate of the infusion.

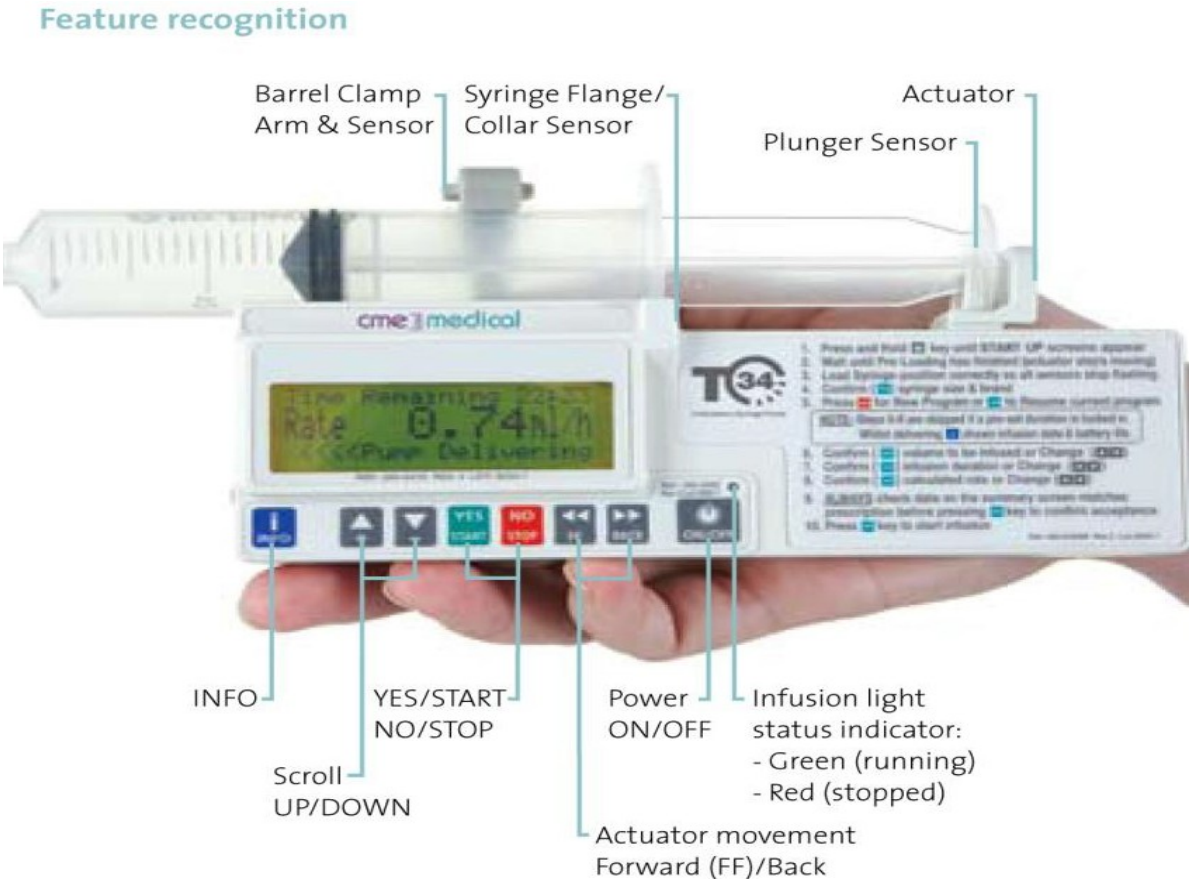
The user checks only to confirm the infusion summary screen (showing duration, rate, volume) matches the patient prescription before starting the infusion.

A user code is required to change 'set up' mode and prevent unauthorised access. In normal use, the user will not see this or be prompted for access codes.

The 'purge option' is not used in order to simplify the process and reduce the risk of set up errors.

The event log displays a complete time and date stamped record of events along with a record of pump status (volume infused, rate etc.) at the time of the event. Event logs cannot be deleted or altered.

Component parts of the CME T34 (2nd Edition) Syringe Pump



Equipment required to set up a Syringe Pump

- Dressing pack/blue tray
- T34 Syringe Pump
- Lockbox and key
- Luer-Lock syringe 20ml, 30ml this must be a BD Plastipak syringe as other syringes are not compatible with the pump
- Syringe Hub (Vgon dual end stopper No. 0999.002)
- Blunt fill filter needle (lilac hub)
- Blunt fill non-filer needle (red hub)
- Saf- T Intima with Y Adaptor (FSP324)
- V-green extension line (FSC095) (FWL075 is first choice, FW108 is second)
- Transparent adhesive film Opsite Flexi grid ELW32510 x 10cm
- Prescribed Medication
- Diluent (water for injection or 0.9% sodium chloride)
- Syringe Label (medication content)
- Sharps Box
- Batteries - As per the advice from the Medical Engineer the only batteries we should use are Duracell Plus 9V (6LR61) and spare (as per local procurement). The use of rechargeable batteries is not recommended. (A variation in battery

size can cause problems with connections in the battery housing MHRA MDA/2018/035)
- Valid patient prescription
- Syringe pump documentation appropriate to locality (Appendix B,C,D)

NB- Battery:
• Always use a new battery every time a Syringe Pump is used for the first time with a patient
• Due to the short battery life, always ensure a spare is readily available
• Change battery at each syringe change
• Used batteries must be discarded appropriately.

Medicines Management

The Medicines Management Policy PHA 001 and relating procedures including the Procedure for the Management of all aspects of Controlled Drugs PHA 058 must be followed and infection control precautions must be adhered to including the following:
• No person must check or administer medicines unless they are competent to do so and they are acting within their sphere of professional practice
• Two RNs must be involved in setting up the syringe pump, including checking calculations and documenting medication administered.
• Water for injection is the preferred diluent for most medicines administered via syringe pump. Diluents are Prescription Only Medicines and must be prescribed.
• Use of most parenteral medicines by the subcutaneous (SC) route is off-label, particularly when medicines are combined together in the same syringe prior to administration. Administration of medicines in this manner, although unlicensed, is considered standard practice and supported by national guidance. As there is potential for interaction between medicines in a driver the compatibility of medicines to be drawn up should be checked prior to mixing drugs. Seek advice from the pharmacy team or palliative care specialists.

Prescribing and administration of medication

All medicines administered via the syringe pump should be clearly and correctly prescribed according to local policy and procedure. The following information must be included:

•Patient demographic details
•Any known allergies
•Medicine name (Generic in CAPITALS)
•Dose over 24 hours
•Diluent
•Route of administration
•Duration of SC infusion
•Prescribers signature
•Date
•Minimum total volume
•Compatibility check indicated by prescriber.

The person preparing the medication should check the following:

•Prescription
•Compatibility of medicines prescribed
•Diluent
•Infusion volume required
•Size of syringe required

Practitioners administering a medicine that they have not previously used by the SC route should be aware that:

•Absorption may be slower than the intramuscular (IM) route
•Irritant medicines may cause a greater inflammatory reaction SC than IM
•The recommended maximum volume for a bolus injection is 2ml SC
•Absorption will be severely limited in patients who are 'shocked', hypovolemic or oedematous
Additional 'as required 'bolus doses of medication should always be prescribed on the relevant prescription chart and be available for administration when required.
When a maintenance 24 hours opioid dose is changed, the breakthrough dose should also be adjusted accordingly.

It remains the responsibility of each individual practitioner to ensure that the medicines(s) prescribed are suitable for CSCI and are stable under these conditions.

The prescriber must prescribe the medicines, dose, diluent and the final volume, the final volume includes all prescribed medicines and diluent. Additionally:

• No more than 3 medicines should be mixed in one syringe. If more than 3 medicines are required, seek advice from the Specialist Palliative Care Team, Medicines Management or Local Hospice.
• Medicine combinations should be reviewed on a regular basis by the MDT to check efficacy and appropriateness of medicine/dose prescribed.
• All medicines should be mixed with water for injection unless otherwise stated.
• On in-patient mental health wards the prescribing and administration of medication administered by CSCI will be recorded on a Subcutaneous Syringe Pump Prescription, Administration and Recording Chart and on the electronic prescribing and medicines administration system (that refers to the use of the hard copy documentation).

NB If the patient's prescribed medications are altered; the changes should be commenced as soon as possible and within 4hrs at the latest.

Preparing medication for the Syringe Pump

It is considered good practice to make the solution as dilute as possible to reduce the likelihood of drug incompatibility and minimise site irritation.

Syringes Selection and Final Volume

- A Leur-lock BD Plastipak must be always be used
- No less than a 20ml Leur-lock syringe should be used
- The prescriber must prescribe the final volume

- 20 mls syringes should be made up to a final volume of 17ml
- 30 mls syringes should be made up to a final volume of 22ml

The final volume includes all prescribed medicines and diluent - If the final volume exceeds these amounts seek specialist advice from Specialist Care Team/Medicines Management

For one drug in the syringe

- Adhere to Aseptic Non Touch Technique- ANTT guidance
- Draw up drug using appropriately sized syringe i.e. to enable the prescribed dose to be accurately drawn up.(blunt fill filter needle Lilac)
- Add this to appropriately volume of diluent (as prescribed) into a 20 mls or 30 mls Luer Lock Syringe
- Mix syringe contents well and expel excess air taking care to avoid expelling any medication.
- Attach the completed drug additive label taking care not to obscure the syringe markings.
- Check the solution for cloudiness, crystallisation. If present, destroy solution in accordance with relevant procedures e.g. CD procedure, discard syringe and check capabilities. Re-prepare the syringe with prescribed medication and diluent
- Attached V-Green, extension line to the BD Saf-T intima
- Prime the infusion set, making sure connection is secure and all air is expelled

For two drugs in the syringe

- Check compatibility of drugs and diluent
- Adhere to ANTT guidance
- Draw up first drug, dilute to an appropriate volume (total volume less than volume of second drug).
- Draw up second drug into a separate syringe of appropriate size and leave needle attached
- Pull back plunger on first syringe to beyond final intended volume and add second drug carefully through the luer end.
- Mix syringe contents well and expel excess air taking care to avoid expelling any medication.
- Attach the completed drug additive label taking care not to obscure the syringe markings.
- Check the solution for cloudiness, crystallisation. If present, destroy solution in accordance with relevant procedures e.g. CD procedure, discard syringe and check capabilities. Re-prepare the syringe with prescribed medication and diluent
- Attached V-Green, extension line to the BD Saf-T intima
- Prime the infusion set, making sure connection is secure and all air is expelled

For three drugs in the syringe

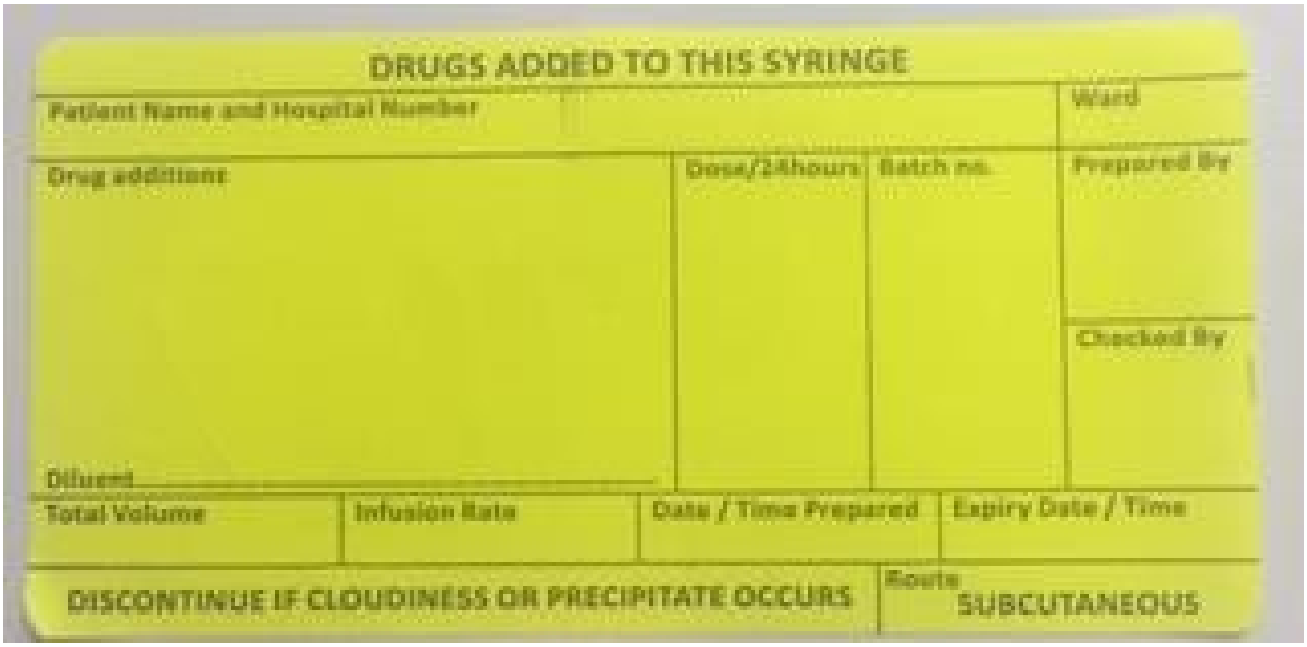
- Check compatibility of drugs and diluent
- Adhere to ANTT guidance

- This should be attempted only when evidence of stability exists, or on the advice of a palliative care specialist when another option, for example a second syringe pump, is not, available or patient is cachectic with few available sites.
- Proceed in a similar manner to above, diluting two of the drugs as far as possible before adding the third.
- If dexamethasone or cyclizine are included in the mixture, add them last once the other two drugs are diluted as far as possible (because they are the most common causes of incompatibility).
- Draw a little air into the syringe, invert it gently several times to mix the contents, and then expel air, taking care not to expel any of the medication.
- Attach the completed drug additive label taking care not to obscure the syringe markings.
- Check the solution for cloudiness, crystallisation. If present, destroy solution in accordance with relevant procedures e.g. CD procedure, discard syringe and check capabilities. Re-prepare the syringe with prescribed medication and diluent
- Attached V-Green, extension line to the BD Saf-T intima
- Prime the infusion set, making sure connection is secure and all air is expelled

The following points should be taken into account when using syringe pumps:

- REMEMBER – If the prescription is changed, you must prepare a new syringe and replace the saf-T Intima giving set. **NEVER** add an additional medicine to the syringe after the infusion has commenced**.**
- Avoid mixing medicines in one syringe if compatibility data is not available; do not mix more than three medicines unless on the advice of a palliative care specialist.
- Do not infuse the contents of the syringe pump over a period longer than 24 hours.
- The effectiveness of symptom control should be closely monitored and recorded and if not controlled then specialist advice should be sourced immediately.
- Frequent checks should be made and documented as per observations recording chart

Labelling the syringe



- Complete the syringe label with the following details:
    - Patient Name
    - NHS Number
    - Medicine Name(s)/ Diluent name
    - Dose/24 hours
    - Batch No.
    - Total volume in ml
    - Infusion rate
    - Date/time prepared and expiry date/time
    - Name of staff members who prepared and checked the medicine

- Attach to the syringe, ensuring it does not obscure that visual scales on the syringe which may be required to be viewed during the infusion
- Ensure that the label does not interfere with the mechanisms of the Syringe Pump.

Battery Test/Insertion

Before using the pump, the following actions should be taken.

- Always check the battery power before commencing the infusion. Press the **INFO** key until the battery level option appears on the screen and then press **YES** to confirm. The average battery life, commencing at 100%, is approximately 3-4 days depending on use. If the battery power has less than 40% life remaining at the start of an infusion then you should consider discarding the battery and installing a new one (as recommended by CME Medical)

- Check that the batteries have adequate connection within the battery housing.
- Check the small sponge is in place prior to use.
- Check the connections after **each** battery change.
- The battery should be removed from the syringe pump when not in use.

Skin site selection

- Where possible, involve the patient in the choice of a suitable site.
- Both the outer arm and upper thigh are commonly used, but avoid the upper arm in bedbound patients who require frequent turning. In other patients, the chest or abdomen may be more suitable.
- Avoid the chest wall in cachectic patients (danger of causing pneumothorax).
- The scapula may be considered for confused or delirious patients who may pull on the line.

Appendix E outlines guidance to siting the Saf –t cannula.

Acceptable SC cannula insertion sites are shown below.

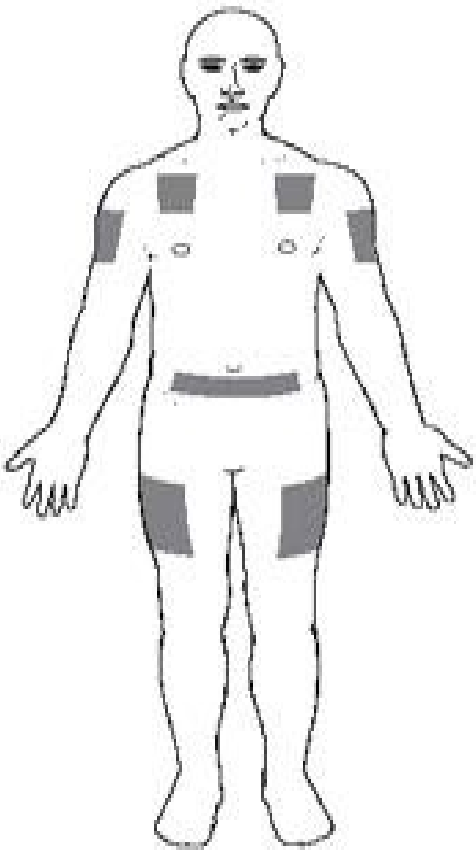
Ensure the area chosen has loose subcutaneous tissue (under the greater trochanter rather than mid-thigh).

- Ensure to date the dressing holding the SC cannula in place.
- The site need not be changed for up to 7 days; however, it should be regularly assessed (refer to the monitoring the McKinleyT34 syringe pump whilst in use section). If a local reaction occurs, a new cannula and SC infusion line should be sited. If this recurs then consider diluting the medicine(s) further. In some exceptional circumstances, for example extreme cachexia, it may be appropriate to leave the cannula in place longer provided the integrity of the site remains.

The following sites should be avoided:

- Oedematous areas including lymphoedematous arms (poor drug absorption and increased risk of infection/exacerbation of oedema) or skin folds
- Bony prominences (poor absorption and discomfort)
- A patient with abdominal ascites
- irradiated sites (may have poor perfusion and hence poor drug absorption)

- Skin folds, sites near a joint and waistband area (movement may displace cannula and cause discomfort)
- Broken /inflamed skin.
- Sites of tumour
- Sites of infection



Priming Lines

- The line should be primed prior to loading the syringe onto the device
- When a site needs changing part way through a 24 hours infusion, unlock syringe pump panel and press NO/STOP button but do switch off
- Remove syringe, prime the new line, re-align the syringe using the FF/BACK button, replace syringe onto the pump
- Confirm that make of syringe, re-check prescription, and attach line to the patient
- This display will ask YES/START TO resume; do not press NO as this will re-set the 24 hour clock as for a new infusion

Fitting the syringe to the syringe pump

- Before placing the syringe into the pump, ensure the barrel clamp arm is down then press and hold the **ON/OFF** key until the `pump identification` screen appears
- The LCD display will indicate `Pre-Loading` and the actuator will start to move. Wait until it stops moving and the syringe sensor detection screen (syringe graphic) appears.

- During `Pre-Loading` the actuator will return to the start position of the last infusion programmed. If the actuator is not in the correct position to accommodate the syringe, leave the barrel clamp arm down and use the **FF** or **BACK** keys on the keypad to move the actuator.
- Forward movement of the actuator is limited, for safety reasons; therefore repeated depressions of the **FF** key may be required when moving the actuator forward. Backwards movement is not restricted.
- **To avoid an inadvertent administration of a bolus dose, the syringe must be attached to the pump before being connected to the patient.**

When fitting the syringe to the syringe pump:

- Verbally check the patient's name (and wristband if used) against the prescription and the syringe label, according to the local medication policy.
- Lift the barrel clamp arm and seat the filled syringe collar/ear and plunger so the back of the collar/ear sits in the central slot (ensure correct placement). The syringe collar/ear should be vertical with the scale on the syringe barrel facing forward.
- Click the syringe plunger into the actuator. This may require some pressure.
- Lower the barrel clamp arm. The syringe graphic on the screen ceases to flash when the syringe is correctly seated at all three points.
- The syringe size and brand option will then be displayed as shown below.

- If the syringe size and brand match the screen message, press the YES key to confirm. If the syringe size and/or brand do not match, scroll with up or down keys until the correct selection appears
- Press the **YES** to confirm

Serious incidents have been reported involving uncontrolled flow of medication when the syringe has not been correctly or securely fitted to the syringe pump

Connecting the SC infusion line to the syringe

When a new SC infusion line is required:

- Attach the SC infusion line to the syringe and ensure the luer-lock is fully screwed onto the thread of the syringe tip
- Prime the tubing with the syringe pump contents until the fluid just shows at the needle tip.
- If a new line is required during an infusion, for example due to site irritation, it will require to be primed resulting in the syringe pump not delivering medication over the full 24-hour period. Document the time the cannula and SC infusion line are changed on the monitoring chart.

When a new skin site is required, for example due to inflammation and pain, a new SC infusion line and cannula must also be used

When an SC infusion line is already in situ and re-siting is not required:

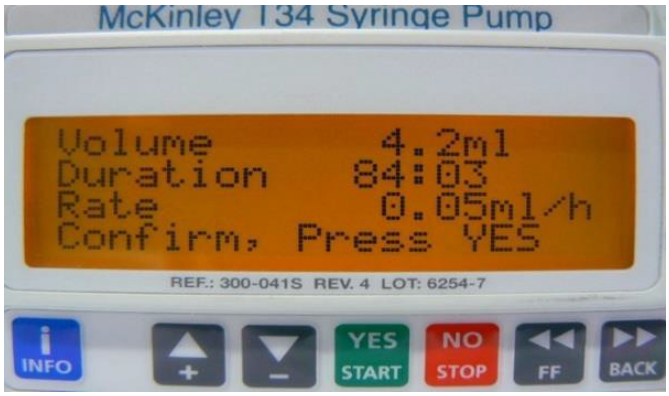
- Disconnect the SC infusion line from the previous syringe **before** removing the syringe from the pump, normally the syringe will be empty, but occasionally it

may not. (This ensures that the patient does not receive an inadvertent bolus dose when the syringe is removed.)

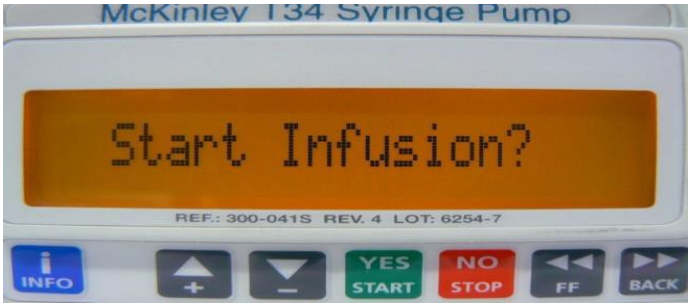
- Remove the previous syringe from the pump and attach the new one
- Programme the infusion on the pump
- Check the SC infusion line is full of fluid and connect it to the new syringe ensuring the luer-lock is fully screwed on to the thread of the syringe tip
- If there is a delay in re-attaching the syringe to the SC infusion line, the line should be capped

Starting the infusion

- **If the patient is symptomatic, a SC "as required" dose of medication should be given at the same time as commencing the syringe pump.**
- After confirming the syringe type, the next screen message that appears is displayed below



- The pump calculates and displays the total volume, duration of infusion (24 hours) and rate of infusion (ml per hour).
- **The calculated volume, duration and rate should be checked before pressing YES to confirm or ON/OFF to return to the syringe options.**
- After pressing **YES** the next screen message that appears will be:



- Check the primed line is connected to the pump and patient.
- •Press **YES** to start infusion.
- •When the syringe pump is running, the green LED indicator (above the **ON/OFF** switch) flashes every 32 seconds and the screen displays pump delivering.

- If the infusion has not been started and a button has not been pressed for more than two minutes, an alarm will sound. The message `Pump Paused Too Long` Confirm, Press YES will show on the LCD display. To stop the alarm, press **YES** and continue programming the infusion.

Keypad lock

- The T34 syringe pump allows users to lock the operation of the keypad during infusion. The function must be used to minimise tampering with the device.
- 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 beep is heard to confirm the lock has been activated.
- When the keypad is activated the **INFO**, **YES/START** and **NO/STOP** buttons are still active.
- To deactivate the keypad lock (pump must be infusing) repeat the above procedure. The 'progress' bar will now move from right (lock on) to left (lock off) and a beep will be heard.
- The T34 syringe pump may be supplied with either a lockbox or non-locking box depending on risk assessment. After starting the infusion, check the syringe pump is set correctly and place it in the relevant box.

WARNING – To reduce the risk of siphonage, the syringe pump should be placed at the same level as, or lower than, the infusion site.

Monitoring the McKinleyT34 syringe pump whilst in use

- It is recommended best practice, in both the hospital and community setting, when a syringe pump is set up, reloaded or re-sited to observe the syringe pump during the first 15 minutes to ensure it is functioning correctly.
- Further monitoring checks should be carried out: Minimum of 4 hourly within inpatient settings and minimum 12 hourly within the community setting or at each visit, the frequency of this will depend on factors such as other nursing needs of the patient, the willingness or ability of the patient/carer to assist in monitoring, risk of instability of medicine mixture. Families and carers need to be involved in this decision making

- Monitoring checks should be documented on the subcutaneous infusion monitoring charts (Appendix F)
  • Record the time the syringe pump is checked
  • record the location of the infusion site when the syringe pump is set up and when the line is changed
  • check the infusion site for:

  ❖ redness
  ❖ swelling
  ❖ discomfort/pain
  ❖ leakage of fluid

  • Check for signs of opiate toxicity/intolerance if contained within the syringe pump
  • check the solution in the syringe and the SC infusion line for presence of large air bubbles (small ones not significant), cloudiness, precipitation or colour change (will need to be discarded if this is the case)
  • record the flow rate and check it is correct
  • record the volume of solution to be infused and the volume infused and check from this information that the syringe pump is delivering the medication at the desired rate (compare the fluid remaining in the syringe with the pump reading/display)
  • check the battery light is flashing, there is no need to record the battery percentage as this has been carried out already as part of the daily set up
  • When the infusion site is changed, record the reason in the notes
  • at each check inspect the SC infusion line to ensure that it is securely attached to both the syringe and the patient and that it is not leaking, kinked or trapped. If there are any problems, then they must be documented. If any checks are not carried out e.g. site check to prevent disturbing the patient whilst asleep, record this on the chart with the reason why.
  The RN carrying out the monitoring checks should document and sign the relevant sections of the Subcutaneous Syringe Pump Prescription, Administration and Recording Chart.

For those people who are at home the patient and relative/carer should be aware of:

- ❖ How to take care of the syringe pump, for example avoid spillages of liquids or dropping the pump and to report if the green light stops flashing or the alarm sounds
- ❖ Ensuring the battery is checked daily
- ❖ Ensuring the syringe pump is well supported when the patient is mobile, for example placed in a pocket or holster
- ❖ Who to contact when a problem occurs.
- ❖ However, their involvement should be assessed according to individual needs, as not all are able/wish to be involved.

Safety Considerations

• Syringe Pumps must not be placed at a level higher than the infusion site, to prevent siphoning of the syringe contents from the pump
• The syringe must be changed every 24 hours because chemical stability of the medicines cannot be guaranteed after this time.

• It is good practice to change the giving set and use a fresh site when there is a change in the medicines prescribed but not a change in the dose prescribed.
• Protect continuous subcutaneous infusions from direct sunlight, especially mixtures containing levomepromazine. Levomepromazine can develop purple discolouration when exposed to light and should be discarded if this occurs.

Stopping the infusion and removing the syringe pump

- When the infusion is nearing completion, a warning will be shown on the LCD display screen 15 minutes before the end of the infusion. When the infusion is complete and the syringe is empty, the pump will stop automatically and an alarm will sound. If the syringe pump is no longer required for the patient, press **YES** to confirm the end of the infusion, disable the keypad lock and press and hold the **ON/OFF** switch ensuring the pump is switched off.
- If the infusion is to be stopped before the syringe is empty, it should also be disconnected from the patient for safety reasons. A syringe that is not empty must never be taken off the syringe pump whilst connected to the patient. If the infusion is to be stopped before the syringe is empty, disconnect the pump from the patient before removing the syringe from the pump.
- Remove the battery. Clean the pump and lockbox as detailed under the cleaning and decontamination section. Do not immerse the syringe pump in water. Dry and replace in packaging if no longer required for use.

How to temporarily stop the infusion

- This is not best practice and should only be used in exceptional circumstances (this should **not** be used for priming a second line):
    - ❖ Press **STOP**, disable the keypad lock and press and hold the **ON/OFF** button
    - ❖ Do not remove the syringe from the syringe pump
    - ❖ Note the time the syringe pump was stopped on the monitoring chart.

How to resume medication delivery if the infusion is interrupted

- To resume the infusion, check the prescription and syringe label match the patient's details.
- Press and hold the **ON** button until a beep is heard.
- The screen will request confirmation of the syringe size and syringe brand.
- If the syringe size and brand match the screen message press the **YES** key to confirm.
- If the syringe size and/or brand do not match, scroll down with the up and down arrows until the correct selection appears, then press the **YES** key to confirm.
- The screen message will display:

- Press the **YES** key to resume the previous programme: the screen will display '**volume, duration and rate**'.
- Check against the monitoring chart that the duration and rate are correct.
- Press **YES** to confirm and the screen will display '**Start Infusion?**', press the **YES** key to confirm.
- Note the time infusion resumed.

WARNING – If the NO key is pressed, the syringe pump interprets this as a completely new 24-hour period and the remaining contents of the syringe would be delivered over the next 24 hours from confirming 'Start infusion?'. The patient would not therefore receive the prescribed dose. If the NO key has been pressed in error, discard the remainder of the syringe contents, prepare, and set up a new syringe.

What to do if a patient dies when their syringe pump is running

- Stop the syringe pump by pressing the **STOP** button and remove the needle/cannula as soon as possible.
- Switch off the syringe pump by disabling the keypad lock and then press and hold the **ON/OFF** button.
- On the subcutaneous infusion monitoring chart, record the date, time and amount of solution (ml) remaining in the syringe and destroyed, and also the signature(s) of the person(s) present and any witnesses
- If there, are suspicious circumstances surrounding the death the senior nurse should be contacted in/out of hours for advice how to proceed. All equipment should be left in situ until advice is received however the battery can be removed from the syringe pump to cease the infusion. It may be necessary to collect the device at a later time.
- Undertake appropriate stock check of all meds and denature as per policy (Procedure to the management of all aspects of Controlled Drugs : PHA 058)

Starting syringe pumps in relations to stopping opioids by other routes of administration

If the syringe pump is commenced when the patients' pain is well controlled then a loading dose of opioids is not necessary. If the patient's pain is not well controlled, give a subcutaneous breakthrough does of opioid at the same time as starting the syringe pump (Prescribing in Palliative Care – Medicine Guidance)

This should be 1/6th to 1/10th of the 24 hour dose prescribed in the syringe pump.

Start the syringe pump immediately if:

- the patients is not current on any opioid OR
- the patient is receiving opioid on an 'as required' basis OR
- the patient is receiving immediate release oral opioid preparation e.g. Sevredol

Patients on modified release oral preparation e.g. MST

- Ideally, start the syringe pump when the next modified release preparation is due, but particularly in the community setting, this may be not a convenient tor safe time. A decision on an appropriate time should be based on the clinical status of each individual patient

Patient on Fentanyl Patches (end of life)

- Consult with palliative care specialist for advice

When oral treatment is to be re-started

- If an oral modified release preparation is being commenced, the CSCI should be stopped when the first dose of modified release oral opioid is administered. The patient may require breakthrough medication more frequently until therapeutic levels stabilise. If further advice is required seek guidance from a palliative care specialists

Administration of Anticipatory/ Supplementary/ 'As required (prn)' Subcutaneous Medicines

- It will often be necessary to administer supplementary subcutaneous medication for symptom control.
- Supplementary subcutaneous medication can be given as a single injection or a Saf-T Intima (or equivalent) can be inserted and left in place for 7 days as long as the site is checked and is not compromised.

When a BD Saf-T Intima is in place for administration via a Syringe Pump, the Y adaptor is not to be used to give supplementary medication.

- Any supplementary medication required should be given as individual medicines and not mixed together in one syringe.
- The maximum recommended volume for a bolus injection at one site is 2mls including a flush. Larger volumes may be painful.
- A flush of 0.5ml 0.9% saline or water for injection should be used after a bolus injection if given via the Saf-T Intima.

Compatibility and stability of subcutaneous infusions

There are various problems associated with mixing medication in the same syringe, which include:

- Degradation of the drugs(s) which can lead to decreased efficiency. The rate of degradation may be increased by other drugs, which can alter the pH of the mixture. Direct sunlight and heat can also cause degradation of the drug (refer to 5.18)
- Crystallisation/precipitation. This can occur through formation of an insoluble product of a drug interaction, or because a drug alters the PH of the salutation rendering a second drug insoluble, or because of an interaction between the drug and the diluent

Drug Combinations

Where drug combination (commonly) an analgesic and an antiemetic) are used, further criteria must be met:

- The drug must be compatible with each other
- The diluent must be compatible with the drugs used.

If in doubt about the compatibility/stability of medicine combination, consider using an additional pump or alternative route of administration. Refer to local guidance for recommendation on the maximum number of medicines, which can be mixed in one syringe and their compatibility. Further guidance can be sought by contacting the local palliative care team

Medicines NOT suitable for subcutaneous use as these may cause tissue necrosis;

- Antibiotics
- Diazepam
- Chlorpromazine
- Prochlorperazine

T34 Syringe Pump Problem Solving

Fault	Possible Causes	Action
The pump will not start	No Battery present	Fit a battery
	Battery inserted incorrectly	Re-align battery terminal
	Cap on battery terminal	Remove cap
	Battery is depleted/very low	Fit a new battery
	Pump is faulty	Service is required
Infusion ended	Drug incompatibility or site problems	Assess patient and discuss with healthcare staff. If ended late, check

early/late		if PRN medication is needed to control symptoms. If the pump is continuing to infuse beyond the prescribed time – stop infusion. Assess why and resolve cause. Set up a new infusion if required. If
	Disconnection of syringe, SC infusion line or cannula	Check placement of syringe, SC infusion line and cannula
	Wrong syringe band confirmed during set up/incorrect volume measured by syringe pump	Set up a new infusion
	Syringe Pump placed >75cm above infusion site. This can lead to siphonage if the syringe is not secured	If user error – seek appropriate training
	Air is present in the syringe	Check syringe barrel to see if it is cracked. A cracked syringe can lead to siphonage. Check if the infusion has stopped at any point. Assess patient and discuss with healthcare staff. If ended late, check if PRN (as required medication) is needed
	The syringe pump is faulty	Contact Medical Engineer for servicing
Infusion is running slow		Check is the infusion has stopped at any point. Assess patient and discuss with healthcare staff. If ended late, check PRN is needed
	Cannula site require to be changed	Set up new infusion
	Pressure/kinking on the SC infusion line or cannula	Check placement on the syringe, SC infusion line and cannula
	Disconnection of syringe, line or cannula	If user error – seek appropriate training
	The syringe pump is faulty	Contact Medical Engineer
Cannula site requires	Irritation from prescribed medication	Use a larger syringe and more dilute solution of drug. Check diluent and

frequent changes		potential alternatives for prescribing with pharmacists/specialist palliative care team
	Cannula Insertion Technique	User error – seek appropriate training
The pump has stopped before the syringe has emptied	Exhausted Battery	Fit new battery, turn syringe pump on, confirm syringe size and brand and then resume infusion
	The Syringe Pump is faulty	Contact Medical Engineer for servicing

Precipitation, cloudiness or colour changes in syringe contents or line

In the event of the syringe or SC infusion line contents precipitation, becoming cloudy or changing colour, the infusion should be stopped. A new infusion at a different site should be commenced using a new cannula and SC infusion line. Discussion should take place with the prescriber or pharmacist about:

- Compatibility information
- Diluent (seek advice on whether sodium chloride 0.9% is appropriate)
- Diluting the medicine(s) in larger volume
- Separating the medication into two syringe pumps or give one medicines as a SC Bolus
- Ensuring the syringe pump is kept away from sunlight and heat as well as hot pack/heat pad or hot water bottle

Residual Volume

There may be an occasion where there is a small residual volume remaining at the end of the infusion. This may be due to site resistance, potentially due to oedema/pressure/reduced absorption; however, the pressure may not be enough to trigger the occlusion alarm.
Residual volume may also result from initial variance when the pump was commenced. This is acceptable if the volume equates to approximately the hourly rate (e.g. approximately 1 hour slow). In this instance, the site should be checked for efficacy. If any doubts about potency/absorption the cannula should be re-sited. The subsequent infusion must be monitored closely for accuracy of infusion time/delivery. If it continues to run slow the pump should be replaced and sent for servicing with full details of the problem.
If the residual volume is more than the hourly rate (more than 1 hour slow) the pump should be replaced and sent with full details of the problem for servicing.
Any residual volume should be disposed of as per policy and clearly documented on Subcutaneous Syringe Pump Prescription, Administration and Recording Chart as “residual volume not infused”. All documentation should be signed/dated.

Syringe Pump Alarm Conditions

When the alarms sounds the syringe pump will automatically stop infusing and continue alarming until the problem has been resolved. It is important that patients /carer and relatives are made aware or this and where to seek advice and help in the event of this occurring e.g. DN contact numbers

When the syringe pump detects a problem, the following occurs;

- An audible alarm is activated
- The infusion stops
- The display indicates the nature of the problem
- The LED indicator turns red

Display	Cause/Action
Pump paused too long	Pump was left unattended in stopped or programme mode for more than two minutes When appropriate, start the infusion (checking rate prior to doing so), continue programming or switch pump off
Occlusion	Occlusion can be related to drug or site factors, for example drug incompatibly. Check for trapping or kinking of the SC infusion. Check cannula and that the patient is not lying on the cannula insertion site Check if the pump has been placed lower than the cannula site which can increase the risk of alarming. If not resolved re-site cannula. Then if not resolved send pump for servicing
Syringe displaced	Syringe not correctly fitted/displaced. On screen messages identifies when sensor to check
Near End	Infusion nearly complete. Infusion does not stop. Prepare to change syringe
End Programme	Infusion complete. Change syringe pump or remove infusion if pump discontinued
Syringe empty	Infusion stops. Check intended time for completion. Change Syringe
Low Battery	To alert user – the infusion does not stop. Change battery, resume infusion

End Battery	Battery depleted. Infusion stops. Change battery and resume infusion
System error	If the screen indicates 'Switching pump off and on may resolve the problem', follow advice on screen. If this does not resolved the problem then contact Engineers for advice

Training

All Registered Nurses are accountable for ensuring that their practice is evidenced based and take appropriate action to ensure they are competent when using syringe pumps for palliative care. Both the Registered Nurse and the Registered Nurse Associate/Assistant Practitioner/Health Care Assistant should maintain evidence of their competence and practice and ensure that they attend the mandatory annual refreshers trainings to undertake the role of seconder checker.

Registered Nurse	• To complete the Medicines Management Skills Framework Competency • To complete the T34 Syringe Pump Competency (Theory & Practical) –Appendix F • To be compliant with the L3 Medicines Management Training (3 yearly) • To be compliant with e-learning Administration of Medicines (3 yearly) • To be compliant with e-learning Controlled Drugs (3 yearly • To attend annual update
Registered Nurse Associate Assistant Practitioner Health Care Assistants	• To complete the Medicines Management Skills Framework Competency • To complete the T34 Syringe Pump Competency (Theory & Practical) –Appendix F • To be compliant with the L3 Medicines Management Training (3 yearly) • To be compliant with e-learning Administration of Medicines (3 yearly) • To be compliant with e-learning Controlled Drugs (3 yearly • To attend annual update

7.0 Monitoring

Standard	Time frame/ format	How this will be monitored	By whom
Policy documents will be accessible	Published online – unrestricted access for all staff	Clinical Assurance Framework/Patient safety matrix monthly report	Lead Nurses
Monitoring of all incidents /complaints reported in association with syringe driver management	Quarterly	Overview report of all incidents/complaints	End of life steering group
Appropriate setting up of Syringe Pumps will be undertaken by RN's	Quarterly	Reported incidents	Team Managers
Registered Nurses will have completed competencies in: Syringe Pumps, relevant Mandatory training	Ongoing	Training Records Registered Nurse Portfolio	Team Managers
Non-registered practitioners will be competent as 2nd Checkers	Ongoing	Training Records Non-registered practitioners portfolios	Team Managers

8.0 References (including applicable NICE publications)

- Nursing & Midwifery Council (2018) The Code: Professional Standards of Practice and behaviours for Nurses, Midwives & Nurse Associates
- Guidelines for the Use of the Version 2 CME T34 Syringe Pump for Adults in Palliative Care – Health Improvement Scotland: March 2020: NHS Scotland
- CME medical UK Limited. T34tm Syringe Pump: http://cmemedical.co.uk/product-category/t-series/
- NG31 – Care of Dying Adults in the last days of Life

9.0 Implementation plan

Category	Action(s)	Target date	Responsible person
Engagement	Discuss this policy in team huddles – key message	December 2020	Team Leader/Manager

Appendix A

For Blackburn with Darwen locality staff should refer to the following documents:

Clinical Practice Summary Guidance on consensus approaches to managing Palliative Care Symptoms
North West Coast Strategic Clinical Networks, August 2017

http://www.elmmb.nhs.uk/policies-and-guidelines/palliative-care/

For Central Lancs locality staff should refer to the following documents:

Clinical Practice Summary Guidance on consensus approaches to managing Palliative Care Symptoms
North West Coast Strategic Clinical Networks, August 2017

End of Life Prescribing Guidance (2016)

For Southport and Formby locality staff should refer to the following document:

North West Coast Strategic Clinical Network Cheshire & Merseyside Audit and Clinical Guidelines Group, June 2017

Appendix B

FOR USE IN BLACKBURN WITH DARWEN LOCALITY

NHS
Lancashire & South Cumbria
NHS Foundation Trust

GUIDANCE FOR THE USE OF THE COMMUNITY PALLIATIVE CARE MEDICINES AUTHORISATION AND ADMINISTRATION CHARTS

These charts are intended for use when any patient requires anticipatory/ supplementary subcutaneous medicines and a syringe pump to deliver their medication in the community. They have been developed by a multidisciplinary group for use across the health economy.

FORM 1	**T34 AMBULATORY SYRINGE PUMP PRESCRIPTION**
• For completion by the prescriber • Specify the previous 24 hour dose of opiate analgesics (syringe pump plus *prn* medication) • Diluent and final volume of medication and diluent in the syringe to be documented • Usually no more than three medicines in one syringe. Seek specialist palliative care or pharmacy advice before adding a 4th medicine to the syringe • Specify the total number of syringe pumps in use and the syringe pump number to which the authorisation relates e.g. 1 of 1, 1 of 2, 2 of 2: NB NO FORM 2	
FORM 3a	**T34 PALLIATIVE CARE COMMUNITY ANTICIPATORY/SUPPLEMENTARY SUBCUTANEOUS MEDICINES**
• For completion by the prescriber • Each medicine to be prescribed for a specified indication. Complete the indication section of the form where necessary • When prescribing small doses and only where clinically appropriate, consider using whole numbers for doses as this is clearer • Doses less than 1 mg should be written in micrograms • Clarify which medication is to be used 1st line and 2nd line when prescribing more than one for the same indication. • Where relevant, specify a maximum dose in 24 hours for each medicine (when required / *PRN* only – excluding dose in syringe pump) • If symptoms remain uncontrolled or you need advice contact your palliative care team.	
FORM 3b	**PALLIATIVE CARE COMMUNITY SUBCUTANEOUS SYRINGE PUMP / MEDICINES ADMINISTRATION AND OBSERVATION RECORDING CHART**
• For completion by nursing staff administering the medication in accordance with Form 2 Subcutaneous Syringe Pump Medicines Authorisation Chart • Record details of the medicines administered via syringe pump and document observations at each visit / check	
FORM 4	**PALLIATIVE CARE COMMUNITY RECORD OF ANTICIPATORY / SUBCUTANEOUS SUPPLEMENTARY MEDICINES AND INJECTABLE MEDICINES STOCK RECORD**
• Record of medication administered by nursing staff, including stock record • If uncertain about administering higher doses seek advice from the prescriber or the palliative care team and document the advice provided in the clinical record	

See intranet for latest version of this document

FOR USE IN BLACKBURN WITH DARWEN LOCALITY

East Lancashire Hospitals NHS Trust

Lancashire & South Cumbria NHS Foundation Trust

FORM 1 T34 AMBULATORY SYRINGE PUMP PRESCRIPTION

Patient name:		Date of Birth:	
NHS/RXR no:		Ward/Community Nursing Team	
Consultant/ GP:			
Known allergies/ alerts:	Previous 24 Hour Analgesics	Hospital / Community prescription (please circle)	

Approved name of medicine (please delete unused lines)	Dose	Route/ Rate	Indication	Pharmacist clinical check (Hospital only)
		SC/24hr		
		SC/24hr		
		SC/24hr		
Specialist advice must be sought if 4 drugs to be used		SC/24hr		

Diluent required: Water for injection ☐ Sodium chloride 0.9% ☐	Final volume: 17mL ☐ 22mL ☐	Fentanyl patch in use? Y ☐* N ☐ *If Y please continue & change every 72hrs Patch strength……micrograms/hour

The prescriber must ensure start date/ time completed to authorise prescription.

Prescriber name (print): Prescriber signature: Date: Time:	Start immediately ☐ Or specify time ……	Stop date: Stop time: Reason for discontinuing: Name: Signature:

Instructions for use:

- Use one prescription chart for each T34 Ambulatory syringe pump
- Commence a new chart where there are changes to the contents of the syringe pump
- It is the responsibility of the prescriber to ensure all prescribed drugs are compatible
- If more than three medicines are required specialist advice **MUST** be sought
- All medication should be mixed with water for injection unless known incompatibility
- Final volume includes all prescribed medication and diluent, if final volume exceeds these amounts seek specialist advice
- **On discharge:** Keep original prescription. Write a new prescription for community. **On admission:** Send prescription details with patient
- Patient information leaflet given Y ☐ N ☐

For advice on syringe pumps please contact:

Specialist Palliative Care Team:

Hospital: Mon–Fri 8.30-16.30 Tel: 01254 732316

Community: Mon–Fri 9.00- 17.00 Tel: 01282 803103
Hospice 24/7 out of hours advice line: 07730 639399

Pharmacy:

FOR USE IN BLACKBURN WITH DARWEN LOCALITY

NHS
Lancashire &
South Cumbria
NHS Foundation Trust

SYRINGE PUMP INFORMATION:

For information about prescribing for a syringe driver please refer to:-
http://www.palliativecareguidelines.scot.nhs.uk/guidelines/end-of-life-care/syringe-pumps.aspx

1. A continuous subcutaneous infusion is a useful method of administration when the oral route is inappropriate e.g. persistent nausea, vomiting, malabsorption, dysphagia and unconsciousness.

2. Transdermal fentanyl or buprenorphine patches should remain in situ in most cases when the need for a syringe pump is short-term.

3. It is common practice to administer 2-3 drugs in the same syringe. It is not recommended to mix more than 3 drugs without specialist palliative care advice.

4. A predictor of drug compatibility is ph. The majority of drugs given by syringe driver are acidic with only dexamethasone, diclofenac, ketorolac and phenobarbitone being alkaline.

5. For most drug combinations, water for injection is the suggested diluent, as there is less chance of precipitation. Generally, incompatible drugs cause precipitation and thus cloudiness in the syringe. Do not use if this happens.

6. Site irritation may be reduced by diluting the drugs in a greater volume of diluent or using sodium chloride 0.9% as the diluent or substituting a plastic cannula.

7. The prescriber must prescribe the final volume. Usual practice is to administer syringe pump medication using a 20ml syringe made up to a final volume of 17mL. Where the volume of medication to be administered over 24 hours is unusually large, or there are problems with site reactions a larger volume of 22mL administered using a 30mL syringe would be more appropriate. The District Nurse will advise the prescriber where this is the case. If the final volume exceeds these amounts seek specialist advice from the Specialist Palliative Care Team.

East Lancashire Hospitals NHS Trust

NHS Lancashire & South Cumbria NHS Foundation Trust

FORM 3a PALLIATIVE CARE COMMUNITY ANTICIPATORY/SUPPLEMENTARY SUBCUTANEOUS MEDICINES AUTHORISATION SHEET

Patient name:		Patient location:	
NHS/RXR no:		Date of Birth:	
Consultant/ GP:		Ward/ Community nursing team:	
Known allergies/ alerts:		Hospital / Community prescription (please circle)	

Indication	Medicine	Dose	Frequency	Max 24 hr dose to be given PRN	Route	Prescriber Signature		Date/Time Discontinued (inc. signature)
						Prescriber's Signature		
						Print Name	Date	
						Prescriber's Signature		
						Print Name	Date	
						Prescriber's Signature		
						Print Name	Date	
						Prescriber's Signature		
						Print Name	Date	
						Prescriber's Signature		
						Print Name	Date	
						Prescriber's Signature		
						Print Name	Date	

THINK	REMEMBER
Is the patient on a regular opioid, including patches • Patches should usually be left in place • Conversion charts for other opioids to morphine can be found in attached information • To convert oral opioids to a syringe pump or to work out correct "as required" doses, see attached pain algorithm	Rationalise regular medication. After discussion and agreement with the dying person and those important to them (as appropriate), stop any previously prescribed medicines that are not providing symptomatic benefit or that may cause harm.
Is the patient known to have an eGFR less than 30mL/min? • If so, seek advice from a palliative care specialist	Consider other advance care planning needs
Are there any concerns about leaving medication in the home?	Provide an information sheet for patient and relatives (attached)
If the patient is opioid naïve use "as required" doses of analgesia subcutaneously for the first 24 hours. If three or more doses of analgesia are required in 24 hours, consider a syringe pump based on the doses required in the previous 24 hours	Update Out of Hours service
	Use EPaCCs template on EMIS update your records

An example of anticipatory drugs for an opioid naïve patient is given below but prescribing needs should be tailored to a person's individual symptoms and discussed with them and those important to them. Regularly reassess, at least daily, the dying person's symptoms to inform appropriate titration of medicine.

Indication	Medicine	Dose	Frequency	Max 24 hr dose (prn)	Quantity to be supplied
Pain / Breathlessness	Morphine sulfate	2.5mg	Hourly prn (pain/pain & breathlessness) 4 hourly (breathlessness)	20mg	5 amps of 10mg/mL
Nausea/vomiting	Levomepromazine	2.5 to 6.25mg	6 hourly prn	25mg	5 amps of 25mg/mL
Agitation/Distress	Midazolam	2.5 to 5mg	2 hourly prn	30mg	5 amps of 10mg/2mL
Respiratory Tract Secretions	Glycopyrronium	200 micrograms	2 hourly prn	1.2mg	5 amps of 200 micrograms / 1mL

ELHT Specialist Palliative Care Team. Community Version 3. 18/4/19

GUIDELINES FOR ANTICIPATORY MEDICATION (JUST IN CASE DRUGS) FOR THE MANAGEMENT OF SYMPTOMS IN THE LAST DAYS OF LIFE
THESE ARE GUIDELINES ONLY – EACH PATIENT'S NEEDS MUST BE CONSIDERED INDIVUALLY

Indication	Medicine	Dose	Frequency	Max 24 hr dose to be given PRN	Route	Usual vial strength and size	NOTES
Pain	PRESCRIBE ONE OF THE FOLLOWING						• If frail, consider lower starting dose of morphine e.g. 1-2mg subcutaneously 2 hourly • If mild to moderate renal impairment, consider lower starting dose of morphine as above; if eGFR <30, consider using oxycodone instead
	IF OPIOID NAIVE:						
	Morphine	2.5mg - 5mg	1 hourly	30mg	SC	10mg/mL (1mL)	
	OR Oxycodone	1mg-2mg	1 hourly	12mg		10mg/mL (1mL)	
	IF ON REGULAR OPIOIDS:						**To establish appropriate SC PRN opioid dose:** - Calculate current total daily oral morphine/oxycodone dose - Divide this by 6 for oral PRN dose - Divide the oral PRN dose by 2 for SC PRN dose • If on regular oxycodone in a syringe pump or regular oral oxycodone, prescribe immediate release oxycodone for PRN SC use • If on **fentanyl**, see guidelines for appropriate SC PRN dose • If prescribing a range of PRN doses, ensure the range is limited (e.g. adjacent PRN doses) and appropriate to the calculated PRN dose
	Continue the opioid the patient is already taking	See notes	1 hourly	Equivalent of 6 PRN doses	SC	Strong enough to enable maximum 2mL injection **Morphine**: 10mg/mL, 15mg/mL or 30mg/mL **Oxycodone**: 10mg/mL or 50mg/mL	
Nausea/ Vomiting	USUALLY PRESCRIBE ONE OF THE FOLLOWING (can consider first and second line options if needed)						• Lower doses can avoid excess sedation. • Levomepromazine is a good broad-spectrum choice, BUT it is worth considering if a different antiemetic is more appropriate. • If on effective oral anti-emetic, consider continuing that subcutaneously
	Levomepromazine	2.5mg - 6.25mg	6 hourly	25mg	SC	25mg/mL (1mL)	
	See notes for alternatives						
Agitation	PRESCRIBE AT LEAST ONE OF THE FOLLOWING						• If eGFR <30, consider reducing midazolam dose e.g. 1mg – 2.5mg SC 2 hourly • Consider prescribing both drugs if indicated
	Midazolam	2.5mg – 5mg	2 hourly	30mg	SC	10mg/2mL (2mL)	
	Haloperidol (consider if delirium)	500 micrograms	2 hourly	5mg		5mg/mL (1mL)	
Excess Secretions	PRESCRIBE ONE OF THE FOLLOWING						• Alternatives include: - hyoscine hydrobromide 400micrograms SC PRN, maximum 2 hourly, maximum 2400micrograms in 24 hours - hyoscine butylbromide 20mg SC PRN, maximum 2 hourly, maximum 120mg in 24 hours
	Glycopyrronium	200 micrograms	2 hourly	1200 micrograms	SC	200 micrograms/mL (1mL)	
Breath-lessness	PRESCRIBE ONE OF THE FOLLOWING						• If taking regular opioids, consider also prescribing a lower dose of their regular PRN opioid specifically for breathlessness – seek Specialist Palliative care Team advice • Consider oxycodone if renal impairment (particularly if eGFR <30) • If on regular oxycodone, prescribe oxycodone for PRN use
	IF OPIOID NAIVE:						
	Morphine	2.5mg - 5mg	4 hourly	30mg	SC	10mg/mL (1mL)	
	OR Oxycodone	1mg-2mg	4 hourly	12mg		10mg/mL (1mL)	
	IF ON REGULAR OPIOIDS:						
	Midazolam	2.5mg - 5mg	2 hourly	30mg	SC	10mg/2mL (2mL)	

- Either a set dose or a range of doses can be prescribed depending on the patient's circumstances – a range is not mandatory
- **Unless stated otherwise**, medication being given for pain, breathlessness or agitation does not have a definite maximum dose, and so the "Max 24 hr dose to be given PRN" on an authorisation form applies only to PRN doses. Medication being given for nausea, vomiting or excess respiratory secretions does have a maximum dose, and so the "Max 24 hr dose to be given PRN" should include any of the same medication being given by syringe pump.
- Consider if any other symptoms are likely to occur e.g. seizures, terminal haemorrhage. If so, consider prescribing additional prn drugs, e.g. for acute seizure midazolam 5mg-10mg, repeated after 10 minutes, maximum 20mg (2 doses) sc/im.
- Ensure enough drugs are prescribed to meet the patient's anticipated needs; 5 to 10 ampoules minimum of each drug, but more if patient likely to need more or bank holiday
- If 2 or more prn doses of a particular drug are needed in 24 hours, consider starting a syringe pump.
- If a syringe pump is or may be needed, ensure the diluent is prescribed, e.g. 10 x 10ml ampoules of water for injection

FOR USE IN BLACKBURN WITH DARWEN LOCALITY

NHS
Lancashire & South Cumbria
NHS Foundation Trust

FORM 3b PALLIATIVE CARE COMMUNITY SUBCUTANEOUS SYRINGE PUMP / MEDICINES ADMINISTRATION AND OBSERVATION RECORDING CHART

Patient Name:	D.O.B.	NHS Number:	Pump Serial No:

Date & Time Started	Batch No/ Expiry Date	Medicine	Dose	Initial Volume	Infusion Rate	Site / Position	Print Name & Signature	The following observations must be recorded at each check						
								Time Checked	Site Viability	Any Crystallisation /Precipitation	Light Flashing	Battery Life Remaining (%)	Volume Remaining (mLs)	Print Name & Signature

FORM 4 PALLIATIVE CARE COMMUNITY RECORD OF ANTICIPATORY/SUBCUTANEOUS SUPPLEMENTARY MEDICINES AND INJECTABLE MEDICINES STOCK RECORD

Lancashire & South Cumbria NHS Foundation Trust

ONE MEDICINE PER SHEET - ONE STRENGTH PER SHEET

Patient Name:	D.O.B.	NHS Number	Medicine & Strength[a]:

Date & Time Given	Batch No/Expiry Date	Balance	Medicine	Dose	Is this an increased dose? (Yes / No)	No. of Ampoules Used	Site - Sub Cut	Site – Syringe Pump	New Stock	Stock Balance	Signature and Print Name
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2

[a]specify strength in total volume e.g. midazolam 10mg / 2ml injection

Appendix C

NHS Chorley and South Ribble CCG, Greater Preston CCG, Lancashire and South Cumbria NHS Foundation Trust, and St Catherine's Hospice

GUIDANCE FOR THE USE OF THE COMMUNITY PALLIATIVE CARE MEDICINES AUTHORISATION AND ADMINISTRATION CHARTS

These charts are intended for use when any patient requires anticipatory / supplementary subcutaneous medicines and a syringe pump to deliver their medication in the community.

FORM 1	**PALLIATIVE CARE - COMMUNITY ANTICIPATORY / SUPPLEMENTARY SUBCUTANEOUS MEDICINES AUTHORISATION SHEET**
• For completion by the prescriber • Each medicine to be prescribed for a specified indication. Complete the indication section of the form where necessary • When prescribing small doses and only where clinically appropriate, consider using whole numbers for doses as this is clearer • Doses less than 1 mg should be written in micrograms • Clarify which medication is to be used 1st line and 2nd line when prescribing more than one for the same indication. • If prescribing a dose range consider use of the word 'to' rather than a dash, for example morphine 10mg to 15mg. A dash can be misread and lead to errors. • Where relevant, specify a maximum dose in 24 hours for each medicine, to include medication administered via syringe pump plus *prn* medication • If symptoms remain uncontrolled or you need advice contact your palliative care team.	
FORM 2	**COMMUNITY SUBCUTANEOUS SYRINGE PUMP MEDICINES AUTHORISATION CHART**
• For completion by the prescriber • Specify the previous 24 hour dose of opiate analgesics (syringe pump plus *prn* medication) • Diluent and final volume of medication and diluent in the syringe to be documented • Usually no more than three medicines in one syringe. Seek specialist palliative care or pharmacy advice before adding a 4th medicine to the syringe • Specify the total number of syringe pumps in use and the syringe pump number to which the authorisation relates e.g. 1 of 1, 1 of 2, 2 of 2	
FORM 3	**PALLIATIVE CARE COMMUNITY SUBCUTANEOUS SYRINGE PUMP / MEDICINES ADMINISTRATION AND OBSERVATION RECORDING CHART**
• For completion by nursing staff administering the medication in accordance with Form 2 Subcutaneous Syringe Pump Medicines Authorisation Chart • Record details of the medicines administered via syringe pump and document observations at each visit / check	
FORM 4	**PALLIATIVE CARE COMMUNITY RECORD OF ANTICIPATORY / SUBCUTANEOUS SUPPLEMENTARY MEDICINES AND INJECTABLE MEDICINES STOCK RECORD**
• Record of medication administered by nursing staff, including stock record • If the prescriber has specified a dose range, administer the lowest dose initially. • A nurse may increase the dose of an opioid drug within the dose range prescribed if they have satisfactorily completed the LSCFT *Care of a Patient Requiring a Syringe Driver* competency assessment for registered nurses • If uncertain about using higher doses seek advice from the prescriber or the palliative care team and document the advice provided in the clinical record	

- If a nurse increases a patient's analgesia then he/she should notify the prescriber / GP of any increase as soon as possible and certainly by the next working day. Where clinically appropriate the medicines authorisation chart should then be rewritten by a prescriber

Agreed for use by Greater Preston CCG, Chorley and South Ribble CCG, Lancashire & South Cumbria NHS Foundation Trust and St Catherine's Hospice Final version Nov 2020

FORM 1 PALLIATIVE CARE - COMMUNITY ANTICIPATORY / SUPPLEMENTARY SUBCUTANEOUS MEDICINES AUTHORISATION SHEET

Name:	**G.P. Name & Base:**
Address:	**Community Nurse Team Name & Base:**
Date of Birth:	
NHS Number:	
Known Allergies / Alerts:	

Indication	Medicine	Dose[a]	Frequency	Max total 24 hr dose of	Route	Prescriber Signature		Date/Time Discontinued (inc.
Pain					SC	Prescriber's Signature Print Name	Date	
Breathlessness					SC	Prescriber's Signature Print Name	Date	
Nausea/ Vomiting					SC	Prescriber's Signature Print Name	Date	
Agitation/ Distress					SC	Prescriber's Signature Print Name	Date	
Respiratory Tract Secretions					SC	Prescriber's Signature Print Name	Date	
Other Indication – Specify					SC	Prescriber's Signature Print Name	Date	

Prescribers may specify a safe, limited dose range where appropriate, but when a dose range is prescribed nurses should administer the lowest dose initially, and if uncertain about using higher doses should first seek advice from the prescriber or palliative care team

THINK	REMEMBER
Is the patient on a regular opioid, including patches • Patches should usually be left in place • Conversion charts for other opioids to morphine can be found in attached information. • To convert oral opioids to a syringe pump or to work out correct " as required" doses, see attached pain algorithm	Rationalise regular medication. After discussion and agreement with the dying person and those important to them (as appropriate), stop any previously prescribed medicines that are not providing symptomatic benefit or that may cause harm
Is the patient known to have an eGFR less than 30ml/min? • If so seek advice from a palliative care specialist	Consider other advance care planning needs
Are there any concerns about leaving medication in the home?	Provide an information sheet for patient and relatives (attached)
If the patient is opioid naïve use "as required" doses of analgesia subcutaneously for the first 24 hours. If three or more doses of analgesia are required in 24 hours, consider a continuous subcutaneous infusion (CSCI) based on the doses required in the previous 24 hours	Update Out of Hours service
	Use EPaCCs template on EMIS to update your records

Indication	Medicine	Dose[a]	Route	Frequency	Max total 24 hr dose of drug (prn plus CSCI*)	Quantity to be supplied
Pain	Morphine sulfate	2.5mg	Subcutaneous	1 hourly prn	30mg	5 amps of 10 mg/mL
		1.25mg if frail or renal impairment	Subcutaneous	2 hourly prn	15mg	
Breathlessness	Morphine sulfate	2.5mg	Subcutaneous	4 hourly prn	30mg	As above
		1.25mg if frail, renal impairment or opioid naïve	Subcutaneous		15mg	
Nausea/ Vomiting	Levomepromazine	2.5 to 6.25mg	Subcutaneous	6 hourly prn	25mg	5 amps of 25mg/mL
Agitation/ Distress	Midazolam	2.5 to 5 mg	Subcutaneous	2 hourly prn	30mg	5 amps of 10mg/2mL
Respiratory Tract Secretions	Glycopyrronium	200micrograms	Subcutaneous	2 hourly prn	1.2mg	5 amps of 0.2mg/mL

An example of anticipatory drugs for an opioid naïve patient is given below but prescribing needs should be tailored to a person's individual symptoms and discussed with them and those important to them. Regularly reassess, at least daily, the dying person's symptoms to inform appropriate titration of medicine.

Agreed for use by Greater Preston CCG, Chorley and South Ribble CCG, Lancashire and South Cumbria NHS Foundation Trust and St Catherine's Hospice April 2016

SYRINGE PUMP INFORMATION:

For information about prescribing for a syringe driver please refer to:-
http://www.palliativecareguidelines.scot.nhs.uk/guidelines/end-of-life-care/syringe-pumps.aspx

1. A continuous subcutaneous infusion is a useful method of administration when the oral route is inappropriate e.g. persistent nausea, vomiting, malabsorption, dysphagia and unconsciousness.

2. Transdermal fentanyl or buprenorphine patches should remain in situ in most cased when the need for a syringe pump is short-term.

3. It is common practice to administer 2-3 drugs in the same syringe. It is not recommended to mix more than 3 drugs without specialist palliative care advice.

4. A predictor of drug compatibility is ph. The majority of drugs given by syringe driver are acidic with only dexamethasone, diclofenac, ketorolac and phenobarbitone being alkaline.

5. For most drug combinations, water for injection is the suggested diluent, as there is less change of precipitation. Generally, incompatible drugs cause precipitation and thus cloudiness in the syringe. Do not use if this happens.

6. Site irritation may be reduced by diluting the drugs in a greater volume of diluent or using sodium chloride 0.9% as the diluent or substituting a plastic cannula.

7. The prescriber must prescribe the final volume. Usual practice is to administer syringe pump medication using a 20ml syringe made up to a a final volume of 17mL. Where the volume of medication to be administered over 24 hours is unusually large, or there are problems with site reactions a larger volume of 22mL administered using a 30mL syringe would be more appropriate. The District Nurse will advise the prescriber where this is the case. If the final volume exceeds these amounts seek specialist advice from the Specialist Palliative Care Team.

NHS

Lancashire and South Cumbria NHS Foundation Trust

FORM 3 PALLIATIVE CARE COMMUNITY SUBCUTANEOUS SYRINGE PUMP / MEDICINES ADMINISTRATION AND OBSERVATION RECORDING CHART

Patient Name:	D.O.B.	NHS Number:	Pump Serial No:

Date & Time Started	Batch No/ Expiry Date	Medicine	Dose	Initial Volume	Infusion Rate	Site / Position	Print Name & Signature	The following observations must be recorded at each check						
								Time Checked	Site Visibility	Any Crystallisation /Precipitation	Light Flashing	Battery Life Remaining (%)	Volume Remaining (mL)	Print Name & Signature

NHS

Lancashire and South Cumbria NHS Foundation Trust

FORM 4 PALLIATIVE CARE COMMUNITY RECORD OF ANTICIPATORY/SUBCUTANEOUS SUPPLEMENTARY MEDICINES AND INJECTABLE MEDICINES STOCK RECORD

ONE MEDICINE PER SHEET - ONE STRENGTH PER SHEET

Patient Name:	D.O.B.	NHS Number	Medicine & Strength*:

Date & Time Given	Batch No/Expiry Date	Balance	Medicine	Dose	Is this an increased dose? (Yes / No)	No. of Ampoules Used	Site - Sub Cut	Site – Syringe Pump	New Stock	Stock Balance	Signature and Print Name
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2
											HCP 1
											HCP 2

*specify as strength in total volume e.g. midazolam 10mg/2ml injection

NHS
Lancashire & South Cumbria
NHS Foundation Trust

Syringe Pump Recording Form for Longridge Community Hospital
APPENDIX 5

LONGRIDGE HOSPITAL SUBCUTANEOUS SYRINGE PUMP PRESCRIPTION, ADMINISTRATION AND RECORDING CHART

Name	D.O.B.	NHS No.	Allergy:	Syringe Pump Serial No.

Date	Medicines (approved name) All medicines must be printed in capitals If a medicine is to be added or changed, a new prescription chart must be written and the old one discontinued	Dose over 24 Hours	Route	Diluent	Final Volume (usually 22mL)	Prescriber (signature) and Name	Pharmacy	Discontinued by and date (Prescription valid for up to 4 days)
	1.		Subcutaneous			Signature		
	2.							
	3.					Print Name		
	4.							

Date and Time Commenced	Infusion Rate	Initial Volume	Site	Nurse's Signature	The following observations to be recorded at least twice daily					
					Time Checked	Site Viability	Any Crystallisation Precipitation	Light Flashing	Volume Remaining	Signature & Print Name

Appendix D

FOR USE IN SOUTHPORT & FORMBY

Form 1 Palliative Care Community Subcutaneous Drug Administration Sheet

West Lancashire, Southport & Formby Palliative Care Services

Drug Administration Sheet

(Replaces blue sheet in Southport & Formby and white sheet in West Lancs)

See over for completion instructions. Please make sure prescription sheet is photocopied & sent with Plan of Care for audit.

Name of Patient	DOB	GP
Address	NHS No.	Sheet No:..... of .....

Drugs to be given regularly

Date	Drug	Route	Dose Range	Frequency	Max/24hrs	Prescriber's Signature	Date Discontinued and Signature

Drugs to be given by continuous subcutaneous infusion

CONTINUOUS SUBCUTANEOUS INFUSION No. 1

Date	Drug	Dose Range/24hrs	Indication	Prescriber's Signature	Date Discontinued and Signature
	write diluent here	volume as needed	diluent		

CONTINUOUS SUBCUTANEOUS INFUSION No. 2 (or continuation)

Date	Drug	Dose Range/24hrs	Indication	Prescriber's Signature	Date Discontinued and Signature
	write diluent here	volume as needed	diluent		

Drugs to be given when required e.g. for breakthrough pain, vomiting, restlessness etc.

Date	Drug	Route	Dose Range	Frequency	Max in 24hrs	Indication	Prescriber's Signature
	write opioid here	S.C.		q1h p.r.n q4h p.r.n.		for breakthrough pain for distressing breathlessness	
	Levomepromazine inj	S.C.	6.25 mg	q8h p.r.n		for nausea or vomiting	
	Midazolam inj	S.C.	2.5 - 5 mg	q4h p.r.n		for agitation & distressing breathlessness	
	Glycopyrronium inj	S.C.	200 micrograms	q4h p.r.n		for respiratory tract secretions	

(Drugs and doses may need to be adjusted in special circumstances e.g. renal or hepatic failure)

In order to ensure maximum clarity of prescription sheets it would be helpful if prescriptions were completed in a uniform manner e.g.

1. For 3 monthly Neocytamen

12/06/14	Hydroxocobalamin Inj	IM	1000 micrograms	3 monthly

2. For daily insulin

10/04/14	Humulin M3 insulin Inj	SC	10 units	b.d.

3. For analgesia in palliative care

e.g. for regular dosage delivered via continuous subcutaneous infusion

02/03/14	Diamorphine Inj	SC	60-90 mg	over 24 hrs

and for breakthrough pain - intermittent injections when required

02/03/14	Diamorphone Inj	SC	10-15 mg	q1h p.r.n.

Conversion for oral morphine to 24 hour subcutaneous diamorphine infusion

Calculate the total daily dose of regular oral morphine over 24 hours.
e.g. 180mg MST b.d. 12 hourly = 360mg total daily dose (TDD) oral morphine

Divide total daily dose by three to calculate dose of **diamorphine** to be administered by continuous subcutaneous infusion (CSCI) over 24 hours via syringe driver e.g.

$$\frac{\text{TDD oral morphine}}{3} = \frac{360\text{mg}}{3}$$

= 120mg subcutaneous **diamorphine** over 24hours

Divide total daily dose by two to calculate dose of **morphine** to be administered by continuous subcutaneous infusion (CSCI) over 24 hours via syringe driver e.g.

$$\frac{\text{TDD oral morphine}}{2} = \frac{360\text{mg}}{2}$$

= 180mg subcutaneous **morphine** over 24 hours

Prescribing a dose range will allow the district nurse to increase the CSCI in the event of increased pain without having to contact the prescriber. This range is likely to be approximately 30% more than the current dose
e.g.

120—160mg **diamorphine** over 24 hours via CSCI OR 180—240mg **morphine** over 24 hours via CSCI

NB: If syringe driver has stopped (e.g. battery failure) and the patient is in pain, consider giving stat dose as well as recommencing the syringe driver.

For conversions from/to other drugs discuss with specialist palliative care services or pharmacy

FOR USE IN SOUTHPORT & FORMBY

Southport &

From 1st May 2017 Community Services in Southport & Formby are provided by Lancashire Care Foundation Trust.

Prescription Sheet

See over for completion instructions

Name of Patient	Date of Birth
Address	GP

Sheet No :..... /of .....

Drugs to be given regularly

Date	Drug	Route	Dosage Range	Frequency	Max/24hrs	GP Signature	Date Discontinued and Signature

Drugs to be given subcutaneously via syringe driver

SYRINGE DRIVER No. 1

Date	Drug	Dosage Range/24 hrs	GP Signature	Date Discontinued and Signature

SYRINGE DRIVER No. 2 (or continuation)

Date	Drug	Dosage Range/24 hrs	GP Signature	Date Discont. and Signature

Drugs to be given when required eg. for breakthrough pain, vomiting, restlessness etc.

Date	Drug	Route	Dosage Range	Frequency	Max/24hrs	GP Signature	Date Discont. and Signature

PS 6295

In order to ensure maximum clarity of prescription sheets it would be helpful if prescriptions were completed in a uniform manner

eg.

1. For 3 monthly Neocytamen

12/6/94	Hydroxocobalamin Inj	IM	1000 micrograms	3 monthly

2. For daily insulin

10/4/94	Humulin insulin Inj	SC	10 units	b.d.

3. For analgesia in palliative care

eg. for regular dosage via syringe driver

2/3/94	Diamorphine Inj	SC	60 - 90 milligrams	over 24 hrs

and for breakthrough pain intermittent injections when required

2/3/94	Diamorphine Inj	SC	10 - 15 milligrams	prn

Conversion from oral morphine to 24 hour subcutaneous diamorphine infusion

Calculate total daily dose of MST & Oramorph over 24 hours

Divide total daily dose by 3 to give dose of diamorphine required to be given over 24 hours subcutaneously via syringe driver

eg. MST 60mg bd & Oramorph 10mg x 3 doses = 150mg/24hrs

$$\frac{\text{Total daily dose oral morphine}}{3} = \frac{150\text{mg}}{3}$$

= 50mg/24hrs of subcutaneous diamorphine

NB: If syringe driver has stopped (eg. battery failure) and the patient is in pain, consider giving a stat dose as well as recommencing the syringe driver.

For conversions from/to other drugs see guidelines

FOR USE IN SOUTHPORT AND FORMBY

Prescribing 'End of Life' Drugs

Anticipatory prescribing of drugs for symptom control for those thought likely to be dying, is essential to ensure proactive care in the last days and hours of life. It is vital that this is undertaken safely and consistently so that every prescriber and administerer of drugs understands what is intended.

Asymptomatic patients on no current medication

Type & Route	Possible symptoms	
'As required' (p.r.n.) drugs for subcutaneous (S.C.) use	Pain Nausea & vomiting Agitation Respiratory tract secretions (RTS) Distressing breathlessness	○ Analgesic e.g. diamorphine 2.5-5mg S.C. up to hourly 'as required' for pain ○ Antiemetic e.g. levomepromazine 6.25mg S.C. up to **eight** hourly 'as required' for nausea & vomiting ○ Anxiolytic e.g. midazolam 2.5-5mg S.C up to four hourly 'as required' for agitation ○ Antisecretory e.g. glycopyrronium 200 micrograms S.C. up to four hourly 'as required' for RTS ○ Opioid & anxiolytic e.g. diamorphine 2.5-5mg & midazolam 2.5-5mg S.C. up to four hourly 'as required' for breathlessness
Continuous subcutaneous infusion (CSCI) (via syringe driver)	If asymptomatic	1. There is **no** indication for anticipatory prescription of syringe driver medication 2. Continuous subcutaneous infusion should only be **prescribed** if patient has become symptomatic and has required 'as required' medication 3. If & when symptoms occur, nursing staff should consult the prescriber to discuss the appropriate future management if needing to administer 'as required' p.r.n. S.C. medication

Symptomatic patients on regular symptom control medication

Type & Route	Possible symptoms	
'As required' (p.r.n.) drugs for S.C. use	Pain	○ Analgesic e.g. diamorphine S.C. up to hourly 'as required' for pain (approximately one twelfth to one sixth of total daily dose of regular oral opioid converted to diamorphine equivalent)
	Nausea & vomiting	○ Antiemetic e.g. levomepromazine 6.25mg S.C. up to **eight** hourly 'as required' for nausea & vomiting
	Agitation	○ Anxiolytic e.g. midazolam 2.5-5mg S.C up to four hourly 'as required' for agitation for agitation
	Respiratory tract secretions (RTS)	○ Antisecretory e.g. glycopyrronium 200 micrograms S.C. up to four hourly 'as required' for RTS
	Distressing breathlessness	○ Opioid & anxiolytic e.g. diamorphine 2.5-5mg & midazolam 2.5-5mg S.C. up to four hourly 'as required' for breathlessness
Continuous subcutaneous infusion (CSCI) (via syringe driver)		1. **Only** current required regular medication should be converted to continuous subcutaneous infusion (CSCI) prescription to be given via syringe driver when the patient is becoming less able to swallow. 2. If 'as required' drugs for additional symptoms are needed, the need for a CSCI prescription should be reassessed by the doctor & nurse. **All** drugs prescribed for CSCI **should be administered** in the CSCI. (none should be optional) 3. The prescription for a subcutaneous infusion should allow a **range** for the administerer to use clinical judgement as to the **dose** required where the prescriber feels this may be appropriate. 4. The drugs prescribed via CSCI are the drugs to be given. It is not a matter of clinical judgement to include them or leave them out. Therefore CSCI drugs which are not yet needed should **not** be prescribed. 'As required' drugs are available for unexpected symptoms.

1. If a patient is truly sensitive to diamorphine then an alternative opioid may be required. Diamorphine sensitivity should not be assumed from morphine sensitivity. (Inability to tolerate morphine does not necessarily predict inability to tolerate diamorphine)
2. Patients may need more or less than the breakthrough (BT) dose of 1/12 – 1/6 of total daily (only a guide). Consider increasing BT dose if the effectiveness or duration of action is insufficient.
3. The higher range on a continuous subcutaneous infusion (CSCI) prescription would usually be an increase of 30-50% of the current regular total daily dose.
4. If needing several doses of BT analgesia, the new dose should be calculated as a percentage of the current dose (30-50%) and **not** by totalling up the BT required, since it takes more analgesia to achieve pain control (i.e. titration phase) than maintain it.

West Lancs, Southport & Formby Palliative Care Services

KEG Jan 2016

Form 3 Community Record of Controlled Drugs Sheet

FOR USE IN SOUTHPORT & FORMBY

NHS

CONTROLLED DRUG RECORD SHEET

Patient's Name: _____ D.O.B.: _____ M.P.I.: _____

Address: _____

Drug Name: _____

Ampoule/Patch Dose/Size: _____

Date	Time	Drug	Stock in hand	Dosage	Stock Remain.	Route	Site	Duration	Signature of Nurse

Ms 17323

1BY

- **Complete all** checks 4 hourly in hospital & at each visit in community.
- Replace battery if less than 35% displayed.
- Re-site infusion every 3 days or earlier if SC site unsatisfactory.

Checklist for Palliative Care Syringe Driver

Patient Name:

Patient DOB:

NHS Number:

DATE						
TIME						
Has the syringe been reloaded at this visit?						
Size of luer lock syringe	ml	ml	ml	ml	ml	ml
Does the brand of syringe used match that on the display?						
Battery level indicated	%	%	%	%	%	%
Volume to be infused (VTBI) left in the syringe?	ml	ml	ml	ml	ml	ml
Rate of infusion displayed	ml/hr	ml/hr	ml/hr	ml/hr	ml/hr	ml/hr
Is "Lock On" displayed?						
Is fluid in syringe and line clear?						
Is skin site satisfactory?						
Have you re-sited infusion on this visit?						
How many days has it been since the infusion was last re-sited?						
Impact/asset number (above barcode on S&O label)						
Inspection due date (must not be used after this date/return EBME)						
Print Initials						

Queenscourt, West Lancs, Southport & Formby, Supportive and Specialist Palliative Care Services (v4) 300617

Appendix E

Guidelines for Subcutaneous siting of the Saf-T Intima

(Adapted from the North Cumbria Palliative Care guidelines)

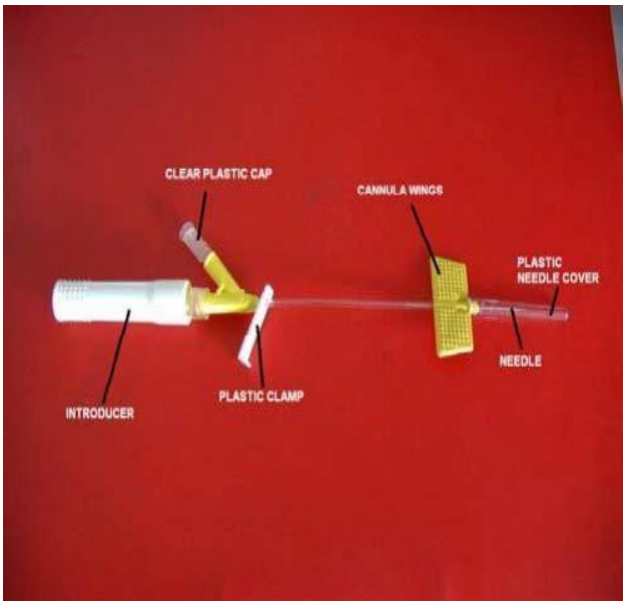


Fig 1.

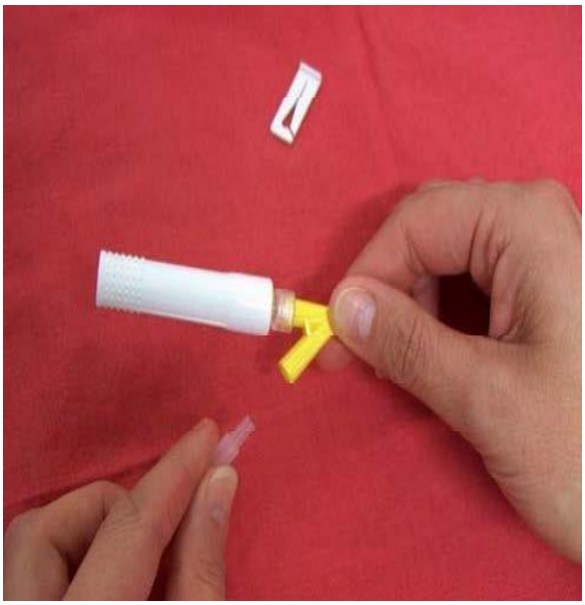
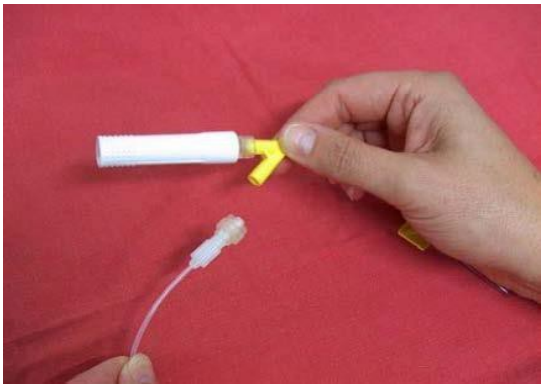


Fig 2.

1. Remove white plastic clamp from device.
2. Remove small clear plastic cap from the “Y” junction of device (Fig 2.)



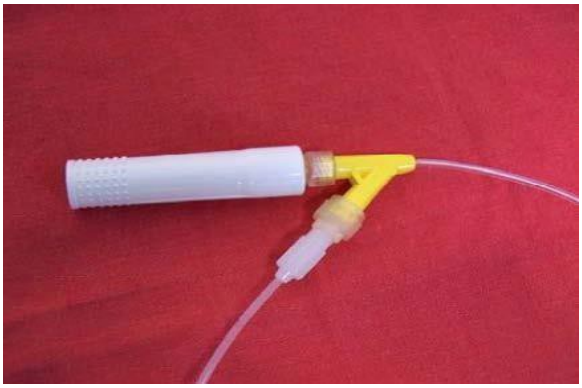


Fig 3. & 4.

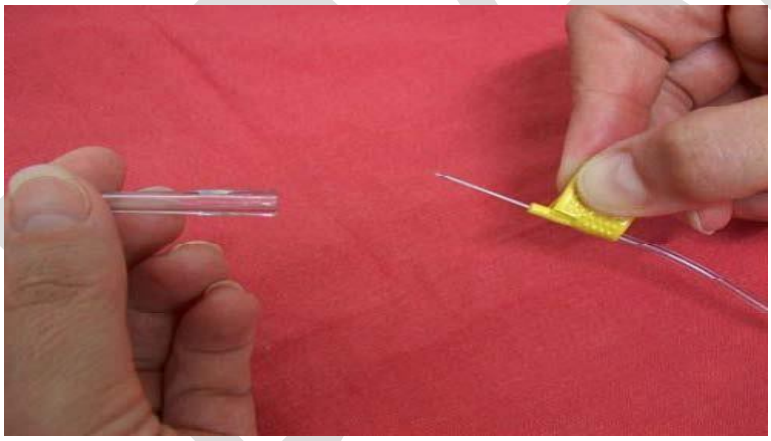
3. Attach leur lock end of extension line to the device (Fig 3. Fig 4.)
4. Attach syringe to extension line, prime the line, connect syringe to the pump.

5. Grip ridged yellow wings of the cannula between thumb and index finger so that the bobbled surface is as shown (Fig 5.)

Fig 5.

6. Remove the plastic needle cover (Fig 6.) and insert needle into the chosen site at an angle of 45 degrees and secure site with a clear dressing.

Fig 6.



7. Hold wings of cannula firmly (Fig 8.) and pull back on the introducer (Fig 9.) until you see four distinct parts (Fig 10.)

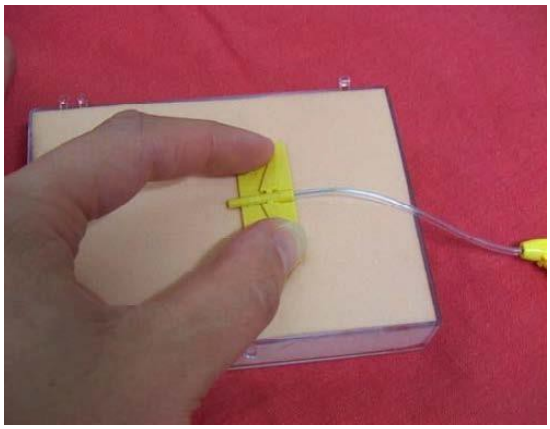


Fig 8.

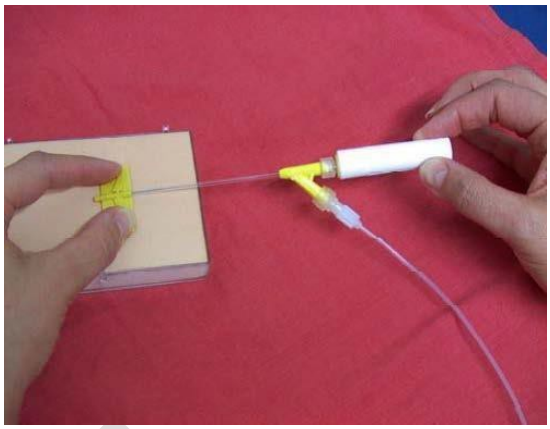


Fig 9.

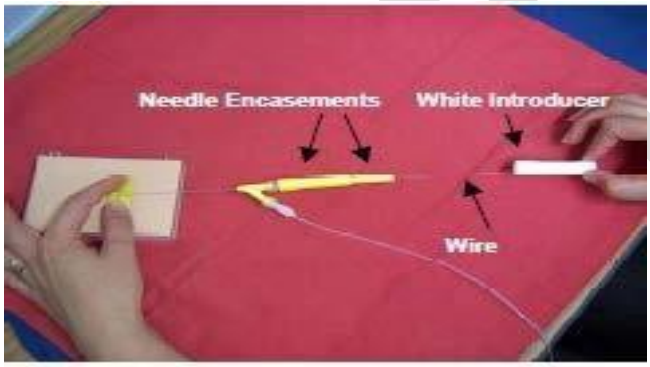


Fig 10.

8. Grip “Y” connection with one hand and the yellow needle encasement with the other hand (Fig 11.)

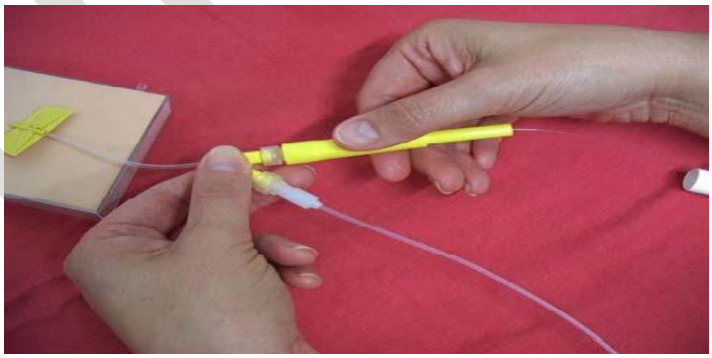


Fig 11.

9. With gentle pulling action, pull the needle encasement away from the “Y” connection. (fig 12.)

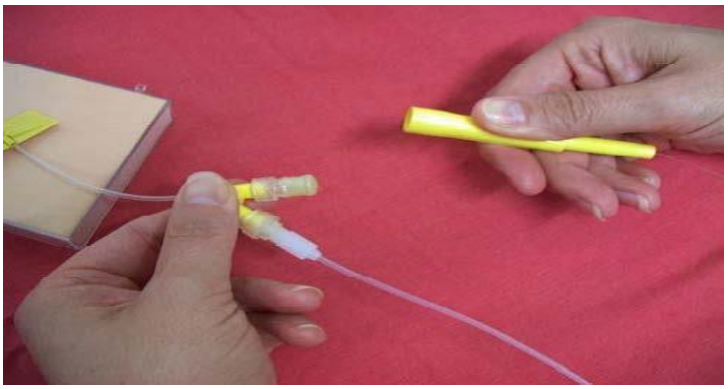


Fig 12.

10. Dispose of needle encasement in the sharps bin.

Check bung on Y connection in situ and secure.

Appendix F –

Lancashire Care NHS
NHS Foundation Trust

FORM 3b PALLIATIVE CARE COMMUNITY SUBCUTANEOUS SYRINGE PUMP/MEDICINES ADMINISTRATION AND OBSERVATION RECORDING CHART

Patient name:				DoB:			NHS number:						Pump serial no:	
Date & time started	Batch no/ Expiry date	Medicine	Dose	Initial volume	Infusion rate	Site/ position	Print name & signature	The following observations must be recorded at each check						
								Time checked	Site viability	Any crystalisation/ precipitation	Light flashing	Batter life remaining %	Volume remaining %	Print name & signature

Appendix G

Community Registered Nurse Competency Assessment for the T34 Syringe Driver

Name……..Team……Locality……Competency Assessment Date Commenced……

	Knowledge & Ability	Self Assessment	Achieved Yes/No	Assessors Signature & Date
1	Which type of syringe driver is used within LSCFT and where would you find the relevant protocol?			
2	What training have you undertaken to support you in the use and management of the T34 syringe driver?			
3	Identify the relevant Trust documentation required for setting up a syringe driver and monitoring a syringe driver.			
4	Describe how often and why the syringe driver checklist is completed.			
5	Describe how you would explain the need for a syringe driver to a patient and his/her family/carer when starting a syringe driver.			
6	Describe the type of battery to be used, indications for battery change and the average battery life.			
7	Describe how to verify battery life (%).			

Community Registered Nurse Competency Assessment for the T34 Syringe Driver

Name……Team……Locality……Competency Assessment Date Commenced……

	Knowledge & Ability	**Self Assessment:Nurse's Comments**	**Formal Assessment By Assessor** (Achieved Yes/No)	**Reviewer's signature & date**	Reviewee's Signature & date
8	Describe the options for infusion lines to be used and why priming the line is important.				
9	What type and size of syringes should be used with a T34 syringe driver?				
10	Describe how you would align syringe to fitting area and purpose of 3 sensor areas.				
11	Describe how to start infusion and confirm the infusion is running.				
12	Describe how you would check the volume to be infused and volume infused.				
13	Describe how to apply keypad / remove keypad lock.				
14	What are the implications of pressing Yes and No on the screen Re: yes to resume and no for new syringe?				
15	Why should the infusion not be connected to the patient when placing syringe in pump?				

Community Registered Nurse Competency Assessment for the T34 Syringe Driver

Name……Team……Locality……Competency Assessment Date Commenced……

16	Describe how often the infusion line should be changed.				
17	Describe what events activate the alert or alarm functions.				
18	Describe what action you would take if an alarm activated.				
19	Describe how to access the “Info” menu and the data that is available.				
20	Describe what to do in the event of an infusion error or device failure, how and who to report incident to.				
21	How often should a syringe driver be serviced? Where would you send the syringe driver for servicing?				
22	Describe how to decontaminate the syringe driver?				
Insert any additional areas of competency assessed below					
23					

Community Registered Nurse Competency Assessment for the T34 Syringe Driver

Name……Team……Locality……Competency Assessment Date Commenced……

24					
25					
26					

OUTCOME:

The nurse is able to demonstrate safe and competent practice to the assessing nurse in the safe use and management of a T34 syringe driver in the clinical setting. **Sign off when all areas competently achieved.**

Final sign off achieved

Sign/Print……Assessor, Designation of Assessor…… Date……

Sign/Print……..Registered Nurse Assessed……..…… Date…..…….

Standard Appendix i: Glossary of Terms -

Term	Description
Syringe Pump	A small portable battery driver pump which continuously administers medication in to a subcutaneous site over a given period of time
Palliative care	Active holistic care of patients with advanced progressive illness.
CSCI	Continuous Sub-Cutaneous Infusion is an infusion of medicine delivered over 24 hours through a needle placed just under the skin (sub-cutaneous). This is delivered by the McKinley syringe pump.
SC	Sub-cutaneous- situated or applied under the skin
CDAO	Accountable Officer for Controlled Drugs
RN	Registered Nurse

Standard Appendix ii

Mental Capacity Act (MCA) Compliance Declaration

Does this policy relate to Clinical practice?

☐ **No** If 'No' please indicate '*not applicable'* in the 'MCA compliance declaration' section of the Document Governance page (page 1). No need to continue.

☒ **Yes** If 'Yes' the policy must be compliant with the MCA. Please continue below

This policy relates to clinical practice and demonstrates compliance with the MCA below:

1. This policy refers all users to the Trust's MCA policy. MCA Policy and Obtaining Authorisation for Deprivation of Liberty CL048 *If 'No' refer back to author – all clinical policies should be read in conjunction with the MCA policy.*	☒ Yes ☐ No
2. This policy refers to consent to treatment and is clear about the requirements where applicable. *If 'Yes' we are confident this is MCA compliant. The Trust's lead has confirmed.* *If 'No' this has been confirmed with the Trust's MCA lead.*	☒ Yes ☐ No
3. This policy specifies the method(s) of consent required where applicable. *If 'Yes' the Trust's lead has confirmed that this is MCA compliant* *If 'No' the Trust's MCA lead has confirmed it is not applicable*	☒ Yes ☐ No
4. This policy excludes service users unable to consent. *If 'Yes' policy is not MCA compliant – refer back to author & MCA lead.*	☐ Yes ☒ No
5. This policy requires staff to use form(s) of restraint and/or restrictive practice(s) *If 'Yes' Trust MCA lead and Safety Department confirm compliance with MCA.* *Evidence held by Effectiveness department in policy archive.*	☐ Yes ☒ No

Appendix iii: Equality Impact Assessment: this MUST be done in collaboration with the Trust Equality and Diversity Lead

When completing, remove all guidance text like this but do not alter or delete any elements of this assessment

LSCFT puts equality, inclusion, and human rights at the centre of the design and delivery of inclusive services for the diverse communities we serve, and the empowering culture we create for our staff.

The legal case is set out in the Equality Act 2010 and the practice is embodied by our staff every day, without exception.

We are stronger together.
Equality@lscft.nhs.uk

This assessment applies to any Trust policy document, or activity required in a Policy, which will have an impact on people.
Please refer to the Equality Impact Assessment (EIA) Form Guidance and the Equality and Diversity Lead. This assessment must be done in collaboration with the E&D Lead

1. What is the title of the Policy and purpose of the activity in requires or involves that needs to be considered and assessed for its impact on people?
The syringe pump policy and procedure has been written to ensure that practice is up to date and based on the relevant strategic and local guidance. This policy is based on NICE and locality (integrated Care Partnerships) specific guidance in relation to symptom management for people who are at end of life. The needs of staff who will use this policy and the patients and their families who require support with symptom

management have been considered in the review. This document is intend to act as a user guide/manual to support staff in the use of the CSCI device.

2. Which group/s of people is/are being considered?		
☒Patients / Service Users ☒Staff	☐Public	☐Partner agencies
☐Other (*please specify here*)		

3. Which of the following protected characteristics may or are likely to be affected by this policy? (× in any box as needed)

Age	Disability	Gender-reassignment	Marriage/Civil Partnership *in employment only*	Pregnancy & Maternity	Race	Religion or Belief	Sex	Sexual Orientation	Other *detail below*
☐	☒	☐	☐	☐	☐	☒	☐	☐	☐

Other:

4. What engagement is taking place or has already been undertaken with those who are likely to be affected?

Liaison with LSCFT Equality, Diversity and Inclusion Advisor
Engagement has taken place in terms of professionals use this device in everyday practice District Nursing Team leaders
Subject experts in relation to palliative care teams who work in collaboration with team across LSCFT.
Lead Pharmacist LSCFT
Deputy Directors of Nursing and Quality
LSCFT end of life steering group, which bridges all networks within the organisation.

5. What impact or potential impact has been identified through the consultation?
A positive impact is perceived, as this is a device use commonly within practice the inclusion of locality specific guidance further supports it use in practice. .

6. What further steps are needed to mitigate or safeguard against the impact/potential impact identified?
Engagement with community/patients/families to gain insight into impact for those who access the service

Outcome of the assessment	**Action/s Required**	**Timescale**	**Accountability**
Outcome 1: **No change(s) required** *When the scoping exercise has not identified any potential for discrimination or adverse impact and all opportunities to promote equality have been taken.*	*No further steps identified		
Outcome 2: **Adjustments to remove barriers that were identified in the consultation** *We need to be satisfied that the proposed adjustments will remove the barriers identified.*	Things that can be done now to ensure that there are no barriers to applying the policy into practice or operations		
Outcome 3: **There is still potential for adverse impact or missed opportunities to promote equality**. *This requires the consideration of 'reasonable adjustments' under the law to adapt and enable people to engage in or access the activities/practices required by the policy.* *In this case, the justification for continuing must be described here and should also be in line with the duty to have 'due regard'.* *For the most important relevant policies, compelling reasons will be needed.* *We need to demonstrate that there are sufficient plans to reduce the negative impact with 'reasonable adjustments' and/or plans to monitor the actual impact*	This is about the application of 'reasonable adjustments'. Acceptable actions that will minimise or mitigate the discrimination arising from implementing the policy which we closely monitor – describe when, how and by whom. You must seek advice and support from the E & D lead in such instances		
Outcome 4**: Stop and rethink.** *When an EIA shows actual or potential unlawful discrimination you will now need to make changes to the policy and practices it requires.*	At this stage we are clearly expecting a different policy to emerge.		

How will we monitor this and to whom will we report outcomes? The executive owner of the policy must be made aware of this	.

assessment and any monitoring or rewriting in relation to outcomes 2,3 or 4 *Risks identified throughout the assessment process and controls designed to address them, must be described and rated and recorded on Datix or in service risk registers in line with Trust processes. Assurance mechanisms should be developed for each activity to ensure that equality and diversity compliance is achieved on an ongoing basis*	

7. Who undertook this assessment and when?

Name: Kathryn Woods	
Job Title: Head of Nursing, Community and Wellbeing	Date assessment started:15.12.2020
Service: Trust Wide	Date assessment completed:

8. Authorised by Trust Equality and Diversity Lead (Signature): Pav Akhtar, Diversity & Equality Lead **Date**: 10/02/2021

9. This MUST be reviewed 6 months from initiation on: 26//09/2021

Appendix iii: **Policy on a Page**

Syringe Pump Policy for use in the palliative care of adults at end of life

NHS
Lancashire & South Cumbria
NHS Foundation Trust

Why we need it…

To provide a clear governance framework to ensure a safe and consistent approach to the use of Ambulatory Syringe Pumps for symptom management in palliative and end of life care.

The policy applies to registered nurses and describes standards and requirements for practice in the use of syringe pumps.

What do I need to do…?

Ensure you are familiar with the indications for use of a syringe pump and how to engage with your patient at the point where one becomes necessary.

Be aware of the requirements of the practice competency framework in the use of syringe pumps and ensure you achieve them.

Use the associated procedure to ensure you are familiar with the requirements of local practice where you work.

The evidence base

Nursing & Midwifery Council (2018) The Code: Professional Standards of Practice and behaviours for Nurses, Midwives & Nurse Associates.

NICE Guidance NG31 Care of Dying Adults in the last days of Life

Who does it affect?

Registered nurses who work with adults in community practice: including temporary staff and agency staff

Contact

Head of Nursing Kathryn Woods

kathryn.woods@lscft.nhs.uk

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If you are reading a printed copy of this document you should check the online edition to ensure that you are using the most current version.

We are LSCft