SYRINGE PUMP POLICY (McKinley) FOR ADULTS AND CHILDREN

(Reference No. CP49 0816)

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Name of Executive Lead	Marian Dunstone
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Target audience:	All Hertfordshire Community Trust (HCT) Staff

SYRINGE PUMP POLICY (McKinley)
FOR ADULTS AND CHILDREN
CP49 0816

Other policies that this policy should be read in conjunction with:

- Medical devices policy
- Waste policy
- Medicines management

Version: 3

Lead Author: Mandy Whiteman

Lead Director: Marian Dunstone

Who is this document is applicable to: all HCT staff

Scope: This policy is applicable to all staff working for, or on behalf of, the Trust (HCT) which includes all bank, agency and volunteer staff.
Statement:

Purpose: This document has been written to give guidance on the use of Syringe Pumps (McKinleys) for Adult palliative care patients and children

General Procedure guidance:

A syringe pump is a portable, battery-operated infusion device used to administer medicines by continuous subcutaneous infusion (CSCI) at a controlled rate over a specific length of time.

It is useful when other routes are not appropriate to manage symptoms effectively, where two or more medicines may be required to control multiple symptoms, and is particularly suited to palliative care.

Key Component / Main content of the Policy:

- Definitions
- Indications for use
- Equipment and maintenance
- Education and competency
- Medication

Specific procedure for individual group:

Procedures detailed in the policy apply equally to all Business Units, services and teams.

Specific training info for staff:

All staff are required to attend an introduction training event and completed a competency framework, giving evidence that they are confident and competent. All staff will then need to attend a yearly update.

Specific info for equipment:

McKinleys Syringe pumps

Governance & Escalation: If you require any guidance about the Policy itself, or would like to escalate any issue please refer to Sections: 35 through to 41, and Appendixes 5, 6, and 7.

Contents

1. Introduction

1.1 Hertfordshire Community NHS Trust ("The Trust") is committed to:

i. Promoting a culture that assures the safety of patients, staff and visitors.
ii. Ensuring that it has procedural documents in place to direct all staff in fulfilling their duties, in a safe and effective manner and to contribute to reducing risks to patients, staff and the organisation as a whole.

1.2 This version supersedes any previous versions of this document.

2. Purpose

2.1 This document has been written to give guidance on the use of syringe pumps (McKinleys) in adult palliative care patients and children.

2.2 Effective implementation aims to achieve safe, competent application of syringe pumps in an environment which takes into account the consent, wishes of the patient and ethical considerations of this process.

2.3 The document will include a rationale, indications for use, identification of symptoms, clinical evidence and ethical considerations, consent and education.

3. Scope

3.1 This policy is applicable to all staff working for, or on behalf of, the Trust (HCT) which includes all bank, agency and volunteer staff.

4. Explanation of Terms and Definitions

4.1 ***Palliative Care -*** is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual. WHO (2002)

4.2 ***Person working on behalf of the Trust' -*** A person working on behalf of the Trust is a person who is not a substantive employee of the Trust and includes:

(i) Bank and Agency staff
(ii) Interim staff or persons on a fixed term contract
(iii) Volunteers
(iv) Contractors, sub-contractors and consultants
(v) Persons on secondment from another organisation
(vi) Persons with an honorary contract
(vii) Students and people on work experience
(viii) Lay members of Trust committees
(ix) Non-Executive Directors

5. Ownership, Roles and Responsibilities

The generic statement of roles and responsibilities of the Trust Board, Designated Committee, The Executive Team, Chief Executive Officer, Lead Executive Director, Lead Policy Author, Deputy Directors/ General Managers, Line Managers, All Staff, Policy Lead and Communication Officer applicable to all the HCT policies/ procedural documents are in line with the HCT (Trust) GR1 1215 V.4. Roles and responsibilities specific to this particular policy should be defined below.

5.1	**Designated Committee**
5.1.1	'Clinical Effectiveness Committee' is the Designated Committee for this policy.
5.2	**Lead Executive Director**
5.2.1	Marian Dunstone is the identified Lead Executive Director for this policy.
5.3	**Lead Policy Author (s)**
5.3.1	The identified Lead Policy Author/s for this policy is Mandy Whiteman
5.4	**Line/ Locality Managers/ Heads of Service**
5.4.1	All managers need to ensure the availability of this policy and monitor training needs
5.5	**All Staff**
5.5.1	To ensure they are confident and competent to use a syringe pump
5.6	**Specialist Groups/ Individuals**
5.6.1	***Group/ Individual* –** Specialist palliative Care staff to be available to offer advice and support as required

6. Document Core Content

6.1 A syringe pump is a portable, battery-operated infusion device used to administer medicines by continuous subcutaneous infusion (CSCI) at a controlled rate over a specific length of time to achieve relatively constant concentrations of medication in the blood plasma.

6.2 It is useful when other routes are not appropriate to manage symptoms effectively, and is particularly suited to palliative care.

6.3 In December 2010, the National Patient Safety Agency Rapid Response Report Safer ambulatory syringe pumps (NPSA/2010/RRR019) required all organisations to develop a 'purchasing for safety' initiative that considers the following safety features:

- Rate settings in millimetres(ml) per hour
- Mechanisms to stop infusion if the syringe is not properly and securely fitted
- Alarms that activate if the syringe is removed before the infusion is stopped
- Lock-box covers and/or lock out controlled by password
- Provision of internal log memory to record all pump events.
- In response to this change in national policy and practice, a new syringe pump, the McKinley T34, has been introduced throughout the Trust and the Graseby syringe pumps have become obsolete.

7. Equipment and Maintenance

7.1 All equipment (syringe pumps, infusion lines, cannulae etc) is obtained through the usual purchasing systems.

7.2 Procurement, acceptance testing, repairs, planned preventive maintenance and decommissioning of T34 syringe pumps should be in accordance with the Trust medical devices policy. Procurement, acceptance testing, repairs, planned preventive maintenance and decommissioning of T34 syringe pumps should be in accordance with the Trust medical devices policy.

8. McKinley T43 Syringe Pumps

8.1 All pumps used in adult and children's services must be configured to 'lock on' so that the pump will only deliver the syringe volume confirmed, over the fixed (locked) duration.

8.2 All pumps used must be configured according to the trust approved configuration and labelled with the trust name.

8.3 The manufacturers operating instructions must be available to all staff using syringe pumps.

8.4 All syringe pumps must be serviced annually, whether used or not, to ensure their function is maintained.

8.5 Syringe pumps should be sent for maintenance checks immediately if they have been dropped, suffered fluid ingress (e.g. had fluid spilt over them or dropped in a bath), been exposed to high humidity or excessive temperatures or if there is any doubt as to their functional operation whilst in use.

8.6 Always check the syringe pump is in good working condition before use.

9. Cleaning and Decontamination

9.1 Syringe pumps and lockboxes must be decontaminated after use, when transferring to another location and before maintenance and repair as follows. The outside surfaces of the pump should be cleaned by wiping with a soft lint-free cloth lightly dampened with warm water and a mild detergent and dried thoroughly. Should we write in here what product (name) infection control suggest?
The main pump screw thread and guiding rods should be brushed with a small dry brush to remove debris and other particles if required. Do not use chemicals or solvents such as acetone/xylene. The pump must not be dipped or immersed in water. Lockboxes should be decontaminated with alcohol spray or wipes. Other products e.g. ammonia, bleach, acetone, should not be used as these may cloud the plastic and make it brittle.

10. Lockbox

10.1 The lockbox protects the syringe pump from damage, and the syringe from displacement and tampering. The control pad panel and battery compartment can still be accessed when locked in the lockbox.

10.2 Each syringe pump must be issued with a lockbox. Syringe pumps must be placed in

the lockbox during infusion in all settings.

10.3 Most commonly used brands and sizes of syringe up to 30ml will fit.

10.4 In exceptional circumstances, where a 50ml syringe is required, specialist advice should be sought.

10.5 Universal keys will be supplied to all community teams following completion of training. Any keys lost should be reported.

11. Batteries

11.1 The T34 uses a single disposable 9 volt alkaline battery.

11.2 Rechargeable batteries and non-alkaline batteries must not be used.

11.3 Typical battery life is 3-5days; (only with Duracell, cheaper batteries do not last this long) however repeated key presses and activation of the screen backlight contribute towards battery depletion.

11.4 The battery must be removed when not in use.

11.5 The battery must be changed before use if the charge remaining is below 40% (29-40 hours usage) at the start of the infusion, except in areas where the infusion is monitored constantly e.g. inpatient settings, where 20% (14-24 hours usage) is acceptable.

11.6 Two new spare batteries should always be available and kept with the syringe pump and replaced as necessary. This is approximately one week's supply and allows time to re-order. The practitioner who replaces a battery is responsible for replenishing the stock of spare batteries.

11.7 Dispose according to trust waste policy. (link)

12. Syringes

12.1 Luer lock syringes must always be used to ensure secure connection of the infusion set. The pump is only calibrated for luer lock only.

12.2 The McKinley T34 can be used with most brands and sizes of syringe, within the trust, syringes of 20 or 30 mls should normally be used. The pump automatically recognises the make and size of syringe on loading and this must be confirmed by the user.

12.3 The 50ml syringe is not recommended for routine use but may be used in exceptional circumstances with specialist advice e.g. where the solution needs to be more dilute to prevent site irritation or for large volume medicines. However the standard lockbox cannot be used with 50ml syringes so a risk assessment needs to be carried out and documented and the need for a larger lockbox highlighted. The trust will purchase a few larger boxes for use with 50ml syringes.

12.4 There are limits to the maximum volume of solution that can be drawn up into the

syringe so that it fits securely in the syringe pump. The actual volume is dependent on the specific syringe brand, but the following volumes are suitable:

Syringe Maximum Volumes
20ml syringe = approx. 17-18ml volume
30ml syringe = approx. 22-24ml volume
50ml syringe = approx. 34-35ml volume

13. Cannula

13.1 All cannula must have luer-lock connectors

13.2 A flexible polyurethane or Teflon cannula must be used for continuous subcutaneous infusion

13.3 The subcutaneous cannula can remain in situ for up to 7 days; however it should be regularly assessed daily. In some circumstances e.g. extreme cachexia, it may be appropriate to leave the cannula in place longer provided the integrity of the site remains and there is no pain, swelling or erythema at the insertion site

13.4 If an infusion site reaction occurs, a new cannula and infusion line must be used and resited at least 3cm away from the original site.

13.5 All details of the cannula must be documented.

14. Infusion Lines

14.1 The infusion line and length depends on patient and nursing needs but must have small priming volume of 0.5 to 1ml (with larger volumes, more dose is lost in the dead space), to be latex free, incorporate an anti-siphon/free flow valve and fit securely in the lockbox.

14.2 The infusion line must be changed every time there is a change to the patient's prescribed medicines or doses, and when a new infusion site is required due to site irritation, inflammation or pain.

14.3 If the prescription does not change, the same line can be used for up to 72 hours providing it is still viable, (i.e. not kinked, damaged or occluded).

15. Event Log

15.1 The event log shows a complete time and date stamped record of the last 512 pump events along with a record of pump status (volume infused, rate, etc) at the time of the event. Events recorded are hourly self-testing when an infusion is running and key presses.

15.2 The event log data cannot be deleted or altered and it is not patient specific so the 512 events are likely to span multiple patients recently treated with that particular pump. Each event is assigned a new number and the pump stores the last 512 in memory. The pump deletes the oldest event in the log each time a new event occurs.

15.3 The event log can be downloaded, saved and printed via a software package held by clinical engineering, in order to help investigate clinical incidents or check pump configuration.

15.4 To view the events log- with the keypad unlocked, press STOP then INFO to access the info menu, scroll down using the ↓arrow to event log and press YES.

15.5 The most recent event displays:
Line 1: assigned event number
Line 2 Date and time of event
Line 3 Pump event (key press)
Line 4 Option to view further information on this event

15.6 Use ↑and ↓arrow keys to scroll up and down to view different events and details of the events.

16. Indications and Considerations for use of Syringe Pumps

16.1
- Dysphagia and inability to swallow oral medicines
- Nausea and vomiting
- Gastro intestinal obstruction
- Oesophageal Obstruction
- Malabsorption of medicines
- Unconsciousness/Coma

Syringe pumps will not deliver better symptomatic management than the oral route unless there is a problem with absorption or administration.
The decision to use a syringe pump should be taken by the multi-professional team in consultation with the patient or carer.

17. Patient Information and Consent

17.1 Written and verbal information must be provided so that patients and their families have a clear understanding of why a syringe pump is being recommended and how it will benefit the patient (see Appendix 1)

17.2 Many patients and relatives associate the use of syringe pumps with dying. It is important for the healthcare professional to explain the rationale for use of the syringe pump as an alternative means of delivering medicines and address any concerns they may have.

17.3 Consent can be obtained verbally; however consent needs to be documented. If the patient does not have capacity, done as best interests and documented.

17.4 The patient and family/carer should be made aware of the following points:-
- Possible side effects, adverse reactions and how to recognise complications
- What to do in the event of a problem or if the syringe pump alarms
- Care and handling of the syringe pump
- Whom to contact for advice or in an emergency, including out of hours
- It is imperative that the pump does NOT get wet as this can affect the normal operation of the pump. If the pump is accidentally dropped in water, it must be withdrawn from use immediately and sent for repair.

18. Prescribing

18.1 All medicines must be prescribed in accordance with the medicines management Policy. (link)

18.2 For further help and support refer to the local Specialist Palliative care team.

18.3 It is advised in patients on opioids patches to leave the patch in place (and continue to change as normal) and use the syringe pump to provide additional analgesia: in this case the breakthrough/as required (PRN) doses must take into account whether the patient has a patch in place.

18.4 Appropriate prn medicines must also be prescribed for each medicine included in the syringe pump.

18.5 Doses of prn opioids should reflect the dose in the syringe pump and be adjusted according to the 24 hour opioids dose, ensuring that if a patch is in situ that this is taken into account.

18.6 If changing back to an oral modified preparation, the continuous subcutaneous infusion should be stopped when the first dose of modified release oral opioids is administered. The patient may require breakthrough medicines more frequently until therapeutic levels are reached.

18.7 If there are any concerns please seek specialist advice from Specialist Palliative Care team or the 24 hour advice line.

19. Diluent

19.1 Water for injection or sodium chloride 0.9% injection may be used as the diluent for subcutaneous infusions.

19.2 The practitioner needs to choose the correct Diluent depending on drugs used. Please seek guidance from the palliative care team.

20. Compatibilities of Medicines

20.1 Syringes and lines containing mixtures of medicines should be observed for signs of physical incompatibility e.g. crystallisation, precipitation, cloudiness, colour change.

20.2 Do not mix more than three medicines in a syringe unless specialist advice from the Specialist Palliative care team or pharmacist is obtained and documented.

20.3 If in doubt about the compatibility or stability of medicine combinations, consider separating the medicines into two pumps or use an alternative method of administration.

20.4 Refer to local guidance for recommendations on which medicines can be mixed in syringes and their compatibilities, or seek specialist advice.

20.5 Medicines that must NOT be given by subcutaneous infusion include antibiotics,

prochlorperazine, chlorpromazine and diazepam.

21. Infusion Site Selection

21.1 Insert cannula subcutaneously

21.2 The site should be chosen with consideration to the patients preferences.

21.3 Best sites include

- Upper chest (avoid in cachexic patients, danger of pneumothorax)
- Upper outer arm or thigh (avoid in bedbound patients who require turning)
- Abdomen (avoid upper abdomen in enlarged liver, risk of puncture to liver capsule)
- Scapula (may be considered for confused or delirious patients who may pull on the line)

21.4 SITES TO AVOID - oedematous areas, skin folds, joints and waistband areas, areas of broken or irritated skin,

- Skin that has been irradiated in the previous six weeks, bony prominences or near a joint, areas with excessive hair.

22. Care of the Cannula and Site

22.1 The Healthcare Professional must

- check and observe the site and the patency of any device before, during and after administration and report/act on any concerns
- Rotate the site as required, the site can be used for up to seven days, however, it should be regularly assessed. In some circumstances e.g. extreme cachexia, it may be appropriate to leave the cannula in place for longer provided the integrity of the site remains.
- Ensure the removal of the cannula at the end of the treatment
- Ensure the patient is aware of the measures to take in the event of displacement of the cannula and has the patient information leaflet. (see Appendix 1)

22.2 If a local reaction occurs, a new cannula and infusion line should be used and resited.

22.3 The cannula should be changed and resited if a different combination of medicines are used which are incompatible with the previous medicines. In cachexic patients and when a syringe pump has been in use over a long period, alternative sites may be very limited. If the existing site is viable and the medicines are compatible continued use may be in the patients' best interest.

22.4 The infusion line must be changed every time there is a change to the patients' medicine or doses, and when a new infusion site is required due to site irritation, inflammation or pain.

22.5 All details of infusion lines and cannulas must be documented.

23. Preparation of Medicines

23.1 The nurse administrating medicines via the syringe pump must:-

(i) Ensure he/she has knowledge and understanding of the medicines to be administered including indications for use and any special monitoring requirements, contra indications and complications of treatment.

(ii) Be satisfied with the prescription and dose, ensuring it is clear and unambiguous and appropriate for the patient's condition. Delay administration and seek immediate advice if there are any doubts or concerns regarding either the prescriber's instructions or the patient's condition.

(iii) Check the patient has no known allergies or sensitivities to the prescribed medicines.

(iv) Ensure the area in which the syringe pump is prepared is clean, uncluttered and free from interruption and distraction.

(v) Assemble all equipment before starting, ensuring that the medicines have been stored correctly and are intact and in date before using.

(vi) Consider the formulation and compatibility of medicines and diluent prescribed and seek further advice if necessary.

(vii) Establish final volume required and select the appropriate size of syringe.

(viii) Draw up the prescribed medicines and compatible diluent as directed by the prescription.

(ix) Ensure the contents of the syringe are mixed well and examine the solution carefully to ensure it appears to be free from crystals, precipitation, particles, cloudiness and contamination and the syringe is intact.

(x) Label the syringe to ensure that the contents can be identified

(xi) Protect the syringe contents from heat and direct sunlight whenever possible.

(xii) Discard any surplus medicines in accordance with trust waste policy. Do not keep for future use. Ampoules and vials should never be used to prepare more than one syringe unless specifically labelled by the manufacturer for multi-dose use.

(xiii) The contents of the syringe must not be used/kept for longer than 24 hours.

(xiv) If the prescription is changed, prepare a new syringe and connect to a new infusion line. DO NOT add additional medication to the syringe after the infusion has commenced, or attempt to change the rate of the infusion.

(xv) All medicines including controlled drugs must be handled in accordance with the trust medicines management policy.

24. Labelling

24.1 The syringe must be labelled with the following information:

(i) patients name
(ii) date of birth and NHS number
(iii) name and dose of each medicine
(iv) the name of the diluent
(v) total volume of the solution drawn up in millilitres (mls)
(vi) date and time prepared
(vii) Signature of the person who prepared the syringe.

The label must not interfere with the mechanism of the syringe pump and should not be attached to the barrel of the syringe at the point where the barrel clamp is applied. When attaching the label, it must not obscure the visual scales on the syringe which may require to be viewed during the infusion.

25. Priming the Infusion Line

25.1 When a new line is attached, the tubing must be primed with the syringe contents BEFORE loading the syringe into the syringe pump.
(ii) The Prime and load sequence must be used to ensure that the pump delivers the remaining contents of the syringe over 24hours so that the infusion does not finish early
(iii) The nurse setting up the syringe pump must document whether the line has been primed on the prescription chart.

NOTE: the decision to use the 'prime and load' method was taken to reduce the number of steps required during set up. However, when the line is primed before loading the patient will receive slightly less of the prescribed dose over 24 hours as some will be lost in the dead space of the line.

The larger the priming volume of the infusion line, or the smaller the volume of the solution in the syringe, the greater percentage of the dose will be lost for example, if syringe volume is 18ml and infusion line is 1ml the 5.5% of the dose is lost in the line.

26. Administration

26.1 Staff must use a clean technique for preparing and managing invasive devices such as syringe pumps.

26.2 The medicines must only be administered to the patient by the syringe.

26.3 The patient's identity, allergy status and prescription must be rechecked before administration commences.

26.4 During 'preloading' the pump performs a self-test and deletes the previous settings from the memory. The 'preloaded' **must** be performed every time a new syringe is loaded.

26.5 For safety reasons, the syringe must be loaded into the pump before connecting to the patient to avoid administration of an inadvertent bolus dose.

26.6 Never take a syringe that is not empty off the pump, if it is still connected to the patient. The infusion line must be disconnected before removing the syringe to prevent free flow of medicine into the patient.

26.7 After starting the infusion, once the nurse has checked that the syringe pump is setup correctly, the control panel keypad must be locked and the pump placed securely in the lockbox.

26.8 **NOTE**: for safety reasons, the keypad lock does not affect the operation of the 'START' and 'STOP' keys so that the infusion can be stopped in an emergency, or the 'info' key for infusion monitoring purposes.

26.9 The display screen messages and settings must be read and checked carefully at every step to ensure the pump has been set up correctly.

26.10 The syringe pump must not be placed at a higher level than the Patient.

27. Administration of breakthrough/as required (PRN) doses

27.1 The subcutaneous line and cannula used for the syringe pump must not be used for the administration of subcutaneous prn doses.

27.2 If a subcutaneous prn dose is required whilst the pump is in progress, it must be administered via a separate cannula or subcutaneously by injection.

28. Documentation

28.1 A clear, accurate and immediate record must be made on the prescription chart or in the patients notes of:-

- Details of insertion and removal of the cannula – details of the cannula, type, size etc, time and date of cannula insertion, removal or change and reasons, the site used and observation of the site.
- Details of the infusion line- details of the line, type size etc, time and date the line changed and reasons for the change.
- Syringe pump/equipment details- asset number on pump, battery percentage, size of syringe, flow rate in mls per hour
- Syringe contents- medicine name, diluent name, dose of each medicine in the syringe, total volume of solution drawn up in mls, date and time infusion commenced, signature and printed name of nurse setting up the syringe pump.

28.2 Details of monitoring (see below)

28.3 All entries must be signed, dated and timed Records must be kept of the strength and quantity of the Injectable controlled drugs received, administered and wasted, in accordance with the medicines management policy.

29. Monitoring

29.1 In all settings, when a syringe pump is set-up, reloaded or resited the registered nurse must observe the syringe pump for the first 15 minutes to ensure it is functioning correctly.

29.2 a healthcare professional should then carry out the monitoring checks as follows

- A minimum of every 4 hours in in-patient settings.
- At each visit by a nurse in community settings – the frequency of this will depend on factors such as other nursing needs of patient, willingness or ability of patient/carer to assist in monitoring, risk of instability of drug mixture.

29.3 The healthcare professional must check the following:-

- The patient – the medicines are controlling the patients symptoms, there are no signs of adverse effects due to toxicity or overdose e.g. opioids effects such as confusion, pin point pupils, visual and auditory hallucinations, sedation, twitching, plucking at the air or myoclonic jerks. There is no signs of leakage, bleeding, redness, tenderness, pain or pus at the infusion site.

- The syringe pump :- the infusion line is securely attached to both the syringe and the patient and that it is not leaking, kinked or trapped. The solution in the syringe and the infusion line for cloudiness, presence of large air bubbles (small ones not significant), precipitation or colour change. The flow rate is correct and the volume of solution remaining in the syringe from this information check that the syringe pump is delivering the medicines at the desired rate. The green LED light is flashing. (a RED light indicates the pump has been paused).

29.4 in community settings, there is no need to check the battery percentage as this has been carried out already as part of the daily set up. In areas where the infusion is monitored 4 hourly e.g. inpatient settings, if the battery percentage was less than 40% on set up it will need including in the 4 hourly check.

29.5 Document the date and time of any monitoring and the details on the syringe pump monitoring chart or in the patient's notes.

29.6 if any checks indicate a problem appropriate action must be taken and documented for example:

- Significant discrepancies in the actual and expected infusion rate
- Signs of incompatibility
- Blockage of the infusion line
- Damage to the syringe barrel or tip, or the presence of a large amount of air, which may indicate the syringe barrel has cracked
- Site reaction

29.7 if an infusion is discontinued before it is complete e.g. because of a change in dose or medicine, document the amount of solution in mls remaining and destroyed on the prescription or in the patients notes.
NOTE: if there is still some solution in the syringe, it must be clamped and disconnected from the patient before removing it from the syringe pump to avoid administration of an unintended bolus dose.

29.8 In the community setting, the patient and/or carer must be given clear guidance on what to do, and who to contact, in the event of a problem arising.

29.9 All pumps need to be logged in and out of clinical bases so that Location and availability of pumps is available at all times.

30. Complications/Adverse Effects

30.1 Any adverse or suspected adverse reaction must be reported to the prescriber as soon as possible. The details should also be documented in the patient's records. If necessary, the nurse may discontinue the syringe pump and reported as a patient safety incident.

30.2 Local site reactions may be caused by:-

- Glass particles
- Infection
- Sterile abscess
- Allergic response to nickel needles
- Chemical reaction in subcutaneous tissue
- Tonicity of solution
- pH of the solution

- Reactions are more likely to occur if the site is older than 72 hours or if certain medicines are used e.g. cyclizine, Levomepromazine and high doses of diamorphine.

30.3 Site reactions may be reduced by:-

- Diluting the solution as much as possible in a larger syringe
- Using a different diluent
- Rotating the site
- Using a non-metal cannula, or different type of cannula
- Changing the medicines or combination of medicines
- Separating the medicines into two syringe pumps.

31. Disposal

31.1 The syringe, complete with remaining contents and line must be disposed of into a yellow rigid sharps bin in accordance with the waste policy. The contents of the syringe and line must NOT be discharged.

31.2 The date, time and amount of solution remaining in the syringe must be recorded on the prescription or in the patient's notes and the entry signed by the nurse. In inpatient settings, disposal of a syringe containing controlled drugs should be signed and witnessed by an appropriately trained practitioner.

31.3 Any unwanted medicines must be handled in accordance with the Medicines management policy. In the community setting, a family member should return medicines to the supplying pharmacy for disposal as soon as possible.

31.4 Medicines are prescribed for the named patient only and must never be used for any other patient.

31.5 The pump must be returned to the clinical base.

31.6 The pump needs to be wiped down with detergent and the cover wiped with an alcohol wipe.

32. Safe transfer between settings

32.1 When a patient is transferred between settings the infusion must not be discontinued whilst the transfer takes place.

32.2 A record of any pumps transferred with patients must be kept and the manager must ensure that all pumps are recovered as soon as possible and can be accounted for at all times.

32.3 Details of prescription and necessary medicines and diluents must be transferred with the patient.

32.4 When transferring a patient to an inpatient setting, the community nurse should inform the ward that a syringe pump is in use so that the ward can ensure a pump is available and it can be changed on arrival. Arrangements must be made to retrieve the syringe pump as soon as possible.

32.5 When transferring a patient from an inpatient setting:

- The nursing staff must notify the district nurses or nursing home to ensure

that a syringe pump and other equipment are available or can be obtained.

- The medicines in the syringe should be renewed before the patient is transferred to ensure they do not run out before they can be changed.
- The inpatient pump must be sent with the patient and strict arrangements must be made to have the syringe pump exchanged within an appropriate timescale and returned as soon as possible.
- In some areas local return arrangements are in place. Also in some areas patients are not being sent home with pumps. They are being taken down prior to discharge; patients are given a prn dose to cover their transition home. In these cases the pump will need to be recommenced and symptoms managed as soon as possible.
- A copy of the discharge prescription must be sent to the patient's district nurse and GP surgery.
- The battery power must be at least 40%.

32.6 When a patient is transferred from an outside setting / agency the syringe pump in use must be exchanged as soon as possible and the pump returned to the owner.

32.7 If a patient is transferred to a setting outside of the Trust where a different pump is in use, remove the lockbox as they will not have a key to unlock it and provide basic instructions on how to turn off and disconnect the pump.

32.8 In all cases, when exchanging the syringe pump, a new syringe must be made up.

33. Advice and specialist information

33.1 Specialist advice is available from our local hospice or specialist palliative care team or via the 24 hour advice line.

33.2 Technical advice on the McKinley T34 syringe pump can be provided by Trust staff to outside agencies e.g. GPs and nursing homes, however advice should not be given on any other pumps unless the member of staff has the necessary knowledge and competence required for the device.

33.3 All advice given or received must be fully documented in the patients' notes.

34. Dissemination and Access to Ratified Policy

34.1 The final reviewed and ratified policy will be published on the HCT website electronically and is available to print through the Trust website – 'Intranet Policy section'.

34.2 All Trust staff will be made aware of the revised policy once approved and ratified; electronically via the staff Noticeboard.

35. Implementation and Training

35.1 The policy will be made available for reference for all staff at all times and the Trust (HCT) will ensure all staff implementing this policy have access to appropriate implementation tools, advice and training.

35.2 Appendix 3 shows the training notes for this policy.

35.3 Competencies need to be completed.
35.4 Staff will need a yearly training update.

36. Monitoring Compliance and Effectiveness of Policy

36.1 Information collect during patient satisfaction surveys and feedback must be reviewed.

36.2 Managers must monitor and review systems to ensure compliance with this policy.

36.3 Where monitoring identifies deficiencies, there must be evidence that recommendations and action plans have been developed and changes implemented.

36.4 Potential and significant risks will be identified through the web based incident report system (DATIX).

37. Review and Revision Arrangements

37.1 The review, updating and archiving process for this policy shall be carried out in accordance with the Trust (HCT) GR1 Policy for Procedural Documents, V.4 by the identified Lead Policy Author.

37.2 Minor revisions and details of amendments are recorded as per Appendix 5.

38. Document Control and Archiving Arrangements

38.1 The version control table as listed in Appendix 6 enables appropriate control of the policy with listed personnel responsible for its implementation as well as the date assigned/ approved/ circulated.

39. Equality Impact Analyses

39.1 It is the responsibility of the Lead Policy Author to complete the EIA form (Appendix 7) before submitting the policy for ratification/ sign off.

40. References

40.1
- WHO (2002)
- Insert text here
- Insert text here

41. Appendices

41.1 The following appendices are attached to support this policy:

Appendix 1 – Patient Information Leaflet

Appendix 2 – Committee Structure
Appendix 3 – HCT Training Guidance Notes
Appendix 4 – Monitoring Compliance for policy
Appendix 5 – Policy/procedural Document Amendments
Appendix 6 – Version Control Table
Appendix 7 – Equity impact analysis form

APPENDICES

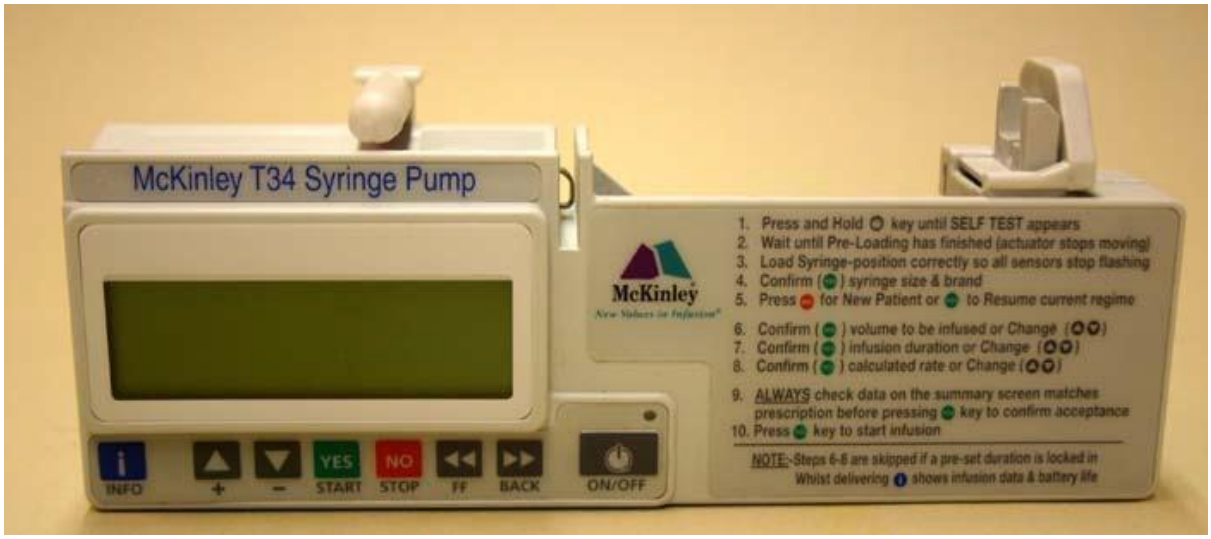
Appendix 1: Patient Information Leaflet

Proud to care for you
Care • Respect • Quality • Confidence • Improve

Hertfordshire Community NHS
NHS Trust

McKinley T34 Syringe Pump

Patient Information



What is a syringe pump?

A syringe pump is a small, portable, battery powered digital machine.

- Attached to the pump is a syringe containing the prescribed medication. The syringe on the pump will need to be changed every 24 hours with the prescribed medication.
- Attached to the syringe is a thin piece of tubing with a very thin needle on the end. Medication is pumped through the tubing and through the needle which is situated under the skin. This is how your body absorbs the medication.
- The syringe pump is placed in a plastic lock box.

Why do I need a syringe pump?

A syringe pump is designed to give you your prescribed medicines over a 24 hour period.

A syringe pump may be considered as a tool to help you in these situations:

- When you have difficulty in swallowing tablets.
- When you are vomiting or feeling sick.
- If you wish to avoid having regular injections.
- If you have a bowel obstruction.
- When you are too weak to take medicines by mouth

The medication contained in the syringe pump is calculated to give you the same effect over 24 hours as the medication you were taking by mouth.

Each day at around the same time your nurse will come to fill up a new syringe and to check the functioning of the machine.

Sometimes, people use a syringe pump for a short time and are then able to take medication by mouth again. The nursing and medical staff will review this on a regular basis.

Where will the needle be inserted?

Your nurse will insert the needle just under the skin, in one of the following sites:

- The chest.
- The upper arms.
- The stomach area.
- The upper thighs.

The needle will be covered and secured by a dressing. Usually the needle can stay in one place for several days. If the site becomes red, painful or hard the nurse will re-site the needle.

What do I need to know about the syringe pump?

The syringe pump is a very reliable machine. Here are some helpful hints:

- An alarm will sound if the syringe is empty, the battery level is low or the tube is blocked or kinked.
- It is normal for a green light which is situated at the front of the syringe pump to flash. Please inform staff if it stops.
- Please inform staff if the needle site becomes sore, swollen or the syringe becomes disconnected.
- If you feel well enough, you can continue with your normal activities.
- If you have a shower or a bath, do not allow the needle site to become wet

and keep the machine out of water.

- Sometimes, it is necessary to use two syringe pumps. This is because some drugs cannot be mixed with each other.

Examples of commonly used drugs in syringe pumps include:

Drug	Reason for medication
Morphine	Pain
Glycopyrronium	To reduce chesty secretions
Midazolam	Restlessness and agitation
Levomepromazine	Nausea and/or vomiting

Your symptoms will be regularly reviewed and your medication adjusted accordingly. If required it is given in addition to your medication in the syringe pump.

The syringe pump lock box

The lock box is a plastic case in which the syringe pump is placed whilst in use. It is used to safeguard your medication in the syringe pump whilst it is working.

What happens when I go home?

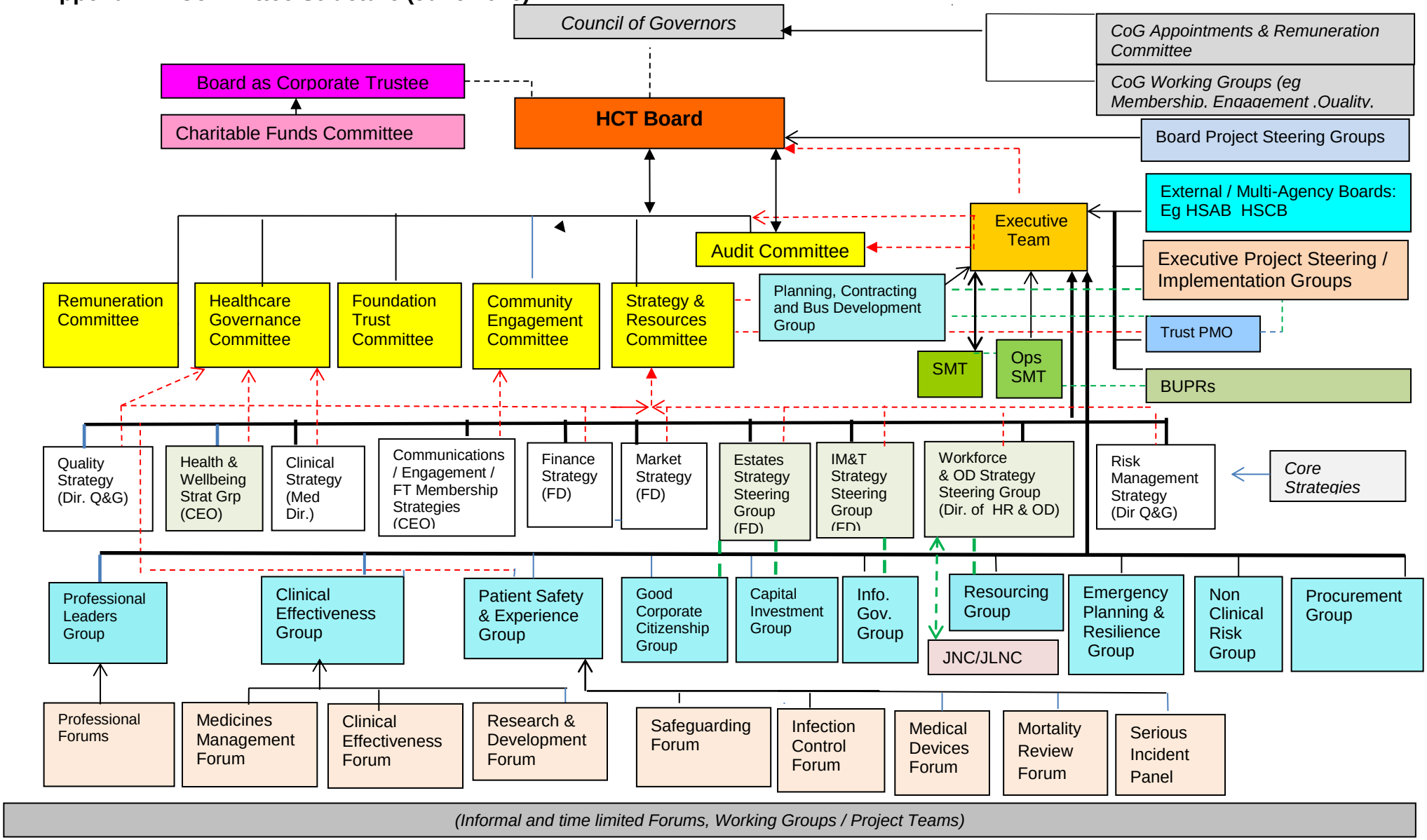
Your Community nurse will care for your syringe pump once you are at home, and will provide all the equipment related to it. The nurse will visit daily to check and reload the syringe pump and to make any adjustments to the medication you may need.

If you think your syringe pump is not working, please contact your community or specialist palliative care nurses

CONTACTS

If you have any problems with your syringe pump please contact your community nurses or hospice at home nurses.

Appendix 2: Committee Structure (June 2016)



Appendix 3: HCT Training Guidance Notes

This document will be used to ensure effective training monitoring and to seek compliance assurance for the procedural document.

Mandatory Requirement	Session	Clinical Staff	Non-Clinical Staff
To include learning outcomes	To include frequency of training and delivery methods	To include target audience	To include target audience

HCT Learning and Development Team, based at Howard Court, Welwyn Garden City, should be contacted for any further advice and guidance.

Appendix 4: Monitoring Compliance for Policy

This document will be used to ensure effective monitoring and to seek compliance assurance for the policy.

Policy Name	Syringe Pump (McKinleys) for adults and children	Policy Version	3		
Lead Policy Author	Mandy Whiteman	Date of Ratification	13.02.17	Date of Next Review	14.02.17

Requirement to be monitored (WHAT)	Lead (WHO)	Tool (HOW)	Frequency of Monitoring (WHEN)	Reporting Arrangements (WHERE)	Development of Action Plan (WHAT and WHO)	Monitoring of Action Plan and Implementation (HOW and WHEN)
Policy is accessible and understood	Policy Author	Communication to all staff	monthly	Clinical effectiveness group	Policy author	By monitoring incidents, datix, monthly.

Appendix 5: Policy/ Procedural Document Amendment(s) Template

To be completed and attached to any procedural document when submitted to the appropriate committee for ratification after doing Minor/ Technical revision(s).

Procedural Document Title: Syringe pump Policy (McKinley) for Adults and children

Lead Policy Author: Mandy Whiteman

Ref No: CP49 0816

Version: 3

Date Revised: Jan 2017

Date of Next Revision: 2 years from ratification

Summary of Amendments:

Section Heading, Paragraph Number(s)	Description of Amendment(s)	Comments
All sections, paragraphs renumbered	Whole document amended to meet new GR1 1215, V.4 format	Updated as per revised GR1 policy in January 2016
All sections, paragraphs reviewed	Whole document reviewed, patient information leaflet inserted	Updated as per review plan

Appendix 6: Version Control Table

Version No.	**Status** (Draft / Approved)	**Lead Policy Author**	**Date ratified** (dd/mm/yyyy) **and assigned Designated Committee**	**Comment** (Key points of amendments)
3	draft	Mandy Whiteman		

Historical Editions:

Edition / Version and Date	**Reason for archiving**	**Date for archiving and location**
3	Superseded by version 2	*N:HCT/Shared Secure/Archived Policies*

Appendix 7: Equality Impact Analysis Form

To be undertaken, completed and attached to any procedural document when submitted to the appropriate committee for consideration and ratification.

Name of the Policy	Syringe Pump Policy(McKinleys) for Adults and Children
Date of Equality Analysis	27/1/17
Those involved in this analysis	Mandy Whiteman

Intended Outcomes What are the Desired Outcomes? What are the benefits?	**Human Rights Approach** What are the patient's core rights as part of this service / function? Are there any gaps identified? What are the risks? What action is needed to mitigate risk and / or close the gap?
For palliative care patients to receive safe and appropriate care using a syringe pump to administer medication . Patients who are unable to tolerate oral medications for pain, nausea/vomiting, agitation or excessive secretions may require medication via a subcutaneous Syringe pump. This will help their symptom control needs	patients core rights is to be involved in the decision making process, to have a full understanding why a syringe pump is being suggested and if patient doesn't have capacity to give consent, ensure this process is completed using best interests as per mental capacity act

Evidence What evidence is being used to support and develop the service / function?	**What are the Risks?** What are the risks in providing an equitable service? How can these risks be reduced, managed or justified?
This policy is available to all staff, training and competency guidance is included. All staff must have completed an introduction training course, have worked through and had signed off competencies and have the confidence to undertake this procedure	All clinical staff have a responsibility to ensure they are competent practitioners, have completed training and attended yearly updates. To seek advice as needed

Who will be Affected? Identify issues in relation to each of the protected groups below:	
Race: None	Gender Reassignment: None
Disability: None	Religion or Belief: None
Gender: None	Maternity & Pregnancy: None
Age: None	Marriage & Civil Partnership: None
Sexual Orientation: None	

What Workforce Issues, including job role and design, need to be considered?	**Engagement and Involvement** Who has been involved in this analysis?

Actions Identified: None

S. No.	What	Who	When	Cost