



Cambridgeshire Community Services is responsible for providing a range of NHS and social care services in the Cambridgeshire area, commissioned by and accountable to Cambridgeshire Primary Care Trust

Policy for Subcutaneous Administration of Fluids (Hypodermoclysis) to Adults in the Community and Community Hospitals

Approval Process

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Dissemination	<p>This policy will be added to the PCT website, policy index and policy folder.</p> <p>This policy will be available on the Local Pharmaceutical Committee website</p> <p>This policy will be sent to: District Nurses via Team Leaders, Community Nursing Sisters or Assistant Locality Managers. GP practices via practice managers. Out of hours medical services Community Hospitals and Arthur Rank House</p>
Implementation	<p>This policy will be implemented by Team Leaders, Community Nursing Sisters or Assistant Locality Managers.</p>
Training	<p>See Policy paragraph 4</p>
Audit	<p>Potential and significant risks will be identified through the PCT incident reporting system (DATIX) and the areas identified will be incorporated into the PCT annual audit programme.</p> <p>Other areas for audit may include incidence of hypodermoclysis, effectiveness of treatment and reasons for commencing/discontinuing hypodermoclysis.</p>
Review	<p>This policy will be reviewed by the Modern Matron, Community Hospitals</p>
Links with other DtGP	<p>The Policy should be read in conjunction with the Policy and Procedures for Management and Administration of Medicines in Inpatient Settings or the Management and Administration of Medicines in Clinics, Community and Home Settings if applicable.</p>
Equality and Diversity	<p>The Medicines Safety and Governance Group has carried out a Rapid Equality & Diversity Impact Assessment and concluded the document is compliant with the PCT Equality and Diversity Policy.</p>

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1 Introduction

1.1. Rationale

The purpose of this policy is to establish safe and consistent practice in the prescribing, acquisition, preparation, administration and monitoring of fluids administered subcutaneously in community settings, to reduce risks, minimise errors and maintain the safety of patients.

This policy supersedes the Cambridge City PCT and South Cambridgeshire PCT Administration of Subcutaneous Fluids.

This policy should be read in conjunction with the following policies and guidelines:

- Policy and Procedure for Management and Administration of Medicines in Inpatient Settings
- Policy and Procedure for Management and Administration of Medicines in Clinics
- Community and Home Settings
- Infection Control Policy

1.2. What is Hypodermoclysis?

Hypodermoclysis is a term used for administration of fluid by the subcutaneous route (SC). It is a relatively safe simple and cost effective technique suitable for use in the community with a range of adult patients groups e.g. older people. It is a reliable method for maintaining adequate hydration in patients unable to take adequate fluids orally. This technique should not be used as a substitute for intravenous fluids in severely dehydrated patients.

It is a useful technique in non-acute settings because it is easy to set up, no vascular access is needed and it is safe and easy to manage in the home setting.

2 Purpose and Scope of the Document that Guides Practice

For the purpose of this document 'community' includes community hospitals

2.1 Objectives

The purpose of this policy is to:

- Outline the responsibilities of health professionals with regard to their role in the prescribing, preparation and administration of subcutaneous fluids.
- Enable healthcare practitioners to assess whether subcutaneous fluids are appropriate for patients in the community setting.
- Provide up-to-date, evidence-based guidance and a knowledge base to support nurses involved in subcutaneous administration of fluids and guide clinical practice.
- Provide guidance on the ethical issues associated with hypodermoclysis.
- Provide a detailed procedure on the technique.

2.2 Outcome

To ensure a safe, effective and consistent approach in the use of subcutaneous fluids in the community.

2.3 Target Group

- Registered nurses working in adult community health services.
- Doctors and other practitioners involved in prescribing subcutaneous fluids.

3 Duties and Responsibilities

The following specific duties and responsibilities apply within the PCT:

3.1 Team Leader, Community Nursing Sister or Assistant Locality Manager

- Ensure that the most recent version of the policy is available for use and any previous versions are removed from use.
- Ensure that staff have read, understood and signed up to the policy.
- Ensure that staff have the necessary training and competencies.
- Ensure that incidents and near misses involving subcutaneous fluids are reported using the Cambridgeshire PCT Incident Reporting form (DATIX).
- Ensure that any suspected adverse drug reactions are reported to the prescriber.
- Ensure that medicines are handled in accordance with all PCT medicines management policies, and that the necessary equipment and supplies are available.

3.2 Registered Nurse

- Assess the patient for appropriateness and duration of the prescribed therapy.
- Ensure that the patient is monitored appropriately during treatment, with regard to the rate of administration, adverse effects and integrity of the subcutaneous tissue.
- Ensure that the necessary records are kept.
- At all times adhere to the Nursing and Midwifery Council Code of Professional Conduct and Guidelines for the Administration of Medicines.
- Understand they are professionally accountable for their practice and must work within their competence.
- Ensure that they have received the necessary training in relation to the solutions used and the subcutaneous fluids administration procedures.
- Ensure that they maintain and update their professional knowledge and skills in the relevant area of practice.
- Ensure that incidents and near misses involving subcutaneous fluids are reported using the Cambridgeshire PCT Incident Reporting form (DATIX).

3.3 Prescriber

- It is the responsibility of the doctor or independent prescriber to prescribe the subcutaneous fluids appropriately. [See 5.6 Prescribing.](#)
- Ensure that the fluid, volume, concentration and rate are appropriate with regard to the integrity and condition of the patient's subcutaneous tissue.

- Review patient's condition within 24 hours of commencement and then as dictated by the patient's condition.

4 Training

- This policy will be highlighted to all relevant healthcare practitioners.
- New healthcare practitioners to whom it applies will be advised to read the policy on induction.
- All relevant healthcare practitioners must read the policy and must sign to say they have read and understood it. Practitioners should seek further advice from their team leader, Community Nursing Sister or Assistant Locality Manager if there are any aspects of the policy that they do not fully understand.
- Healthcare practitioners must identify their own training needs and inform their team leader.
- Subcutaneous fluids may only be administered by registered nurses that have the necessary knowledge and skills and are confident and competent to carry out this practice.
- It is the responsibility of individual nurses to maintain and update their knowledge and skills and keep their own record of continuing professional development.

5 Guidance

5.1 Indications for use of Subcutaneous Fluids

Subcutaneous fluids may be used when the patient requires fluids to supplement their oral intake and oral intake is not sufficient to achieve hydration.

Dehydration can be a common problem in older people, both at home and in institutional settings. Acute problems such as mild infections, vomiting and diarrhoea or temporary confusion due to a change in medication could all precipitate dehydration because an adequate fluid intake cannot be maintained.

For people with mild dehydration or at risk from dehydration, subcutaneous fluids are a safe intervention that could potentially prevent the need for hospitalisation.

Symptoms associated with dehydration can include; thirst, dry mouth, dysphagia, nausea and vomiting, headache, muscle cramps, disorientation, dry mucous membranes, reduced skin turgor, reduced sweating, postural hypotension, tachycardia and oliguria.

The decision to give subcutaneous fluids in any situation is one that needs careful consideration and should involve the patient and family /carers. Patients and families should understand why the fluids are being used and that if the aims of treatment are not met the treatment should be discontinued after further discussion. The difficulties of withdrawing treatment once started should be taken into account when making the decision to start.

The appropriateness of subcutaneous fluids should be reviewed as dictated by the patient's condition.

5.2 Ethical considerations

Studies suggest that terminally ill cancer patients may achieve adequate hydration with much lower volumes of fluid than those required for the average medical patient. A natural consequence of the process of dying is a reduction in oral intake and dehydration in patients who are terminally ill may be due to several causes. It is unclear whether dehydration adversely affects the patient's quality of life or well-being. Many dying patients are not symptomatic from dehydration but there may be others who do manifest symptoms.

The symptom that most patients, carers and clinicians worry about is thirst and dry mouth. The evidence of thirst and dry mouth in the dying patient is often associated with multiple factors including drug therapy; therefore these symptoms may be relieved by a change of medication and good mouth care.

Some researchers believe that symptoms of dehydration can be alleviated by subcutaneous hydration, whilst many urge caution in the use of subcutaneous hydration in the terminally ill. An often-cited opinion is that subcutaneous fluids should only be used if the person is in some way distressed by the lack of fluid.

Administration of fluids in patients who have cardiopulmonary, renal or hepatic failure may contribute to increased pulmonary oedema, pharyngeal secretions, peripheral oedema, ascites and vomiting and may be an unnecessary intrusion.

A medical assessment is needed to ensure that patients who require fluid replacement for correction of specific problems are identified and the most appropriate route for fluid administration is established.

The National Council for Palliative Care publication "Artificial Nutrition and Hydration Guidance in End of Life Care for Adults", May 2007, stated "In assessing whether to give artificial nutrition or hydration, each case needs to be individually assessed to determine what is in that person's best interests. ...Best interests decisions will include an assessment of the benefits and burdens to the patient"

5.3 Contra-Indications

- Severe dehydration – subcutaneous fluids should **not** be used as a substitute for intravenous fluids in life-threatening situations
- Patients requiring more than 2 litres of subcutaneous fluid in 24 hours
- Physiological shock
- Poor tissue perfusion
- Existing fluid overload

5.4 Cautions

- Existing oedema
- Patients with platelet or coagulation defects, which may predispose to bleeding at cannula sites.
- Cardiac failure or renal failure where patients need a precise volume and rate of infusion

- Avoid previously irradiated skin and sites near joint, bony prominences
- Avoid areas of oedema

5.5 Consent

- Patients and their families need to have a clear understanding of why subcutaneous fluids are being used and how they will benefit the patient, and that if the aims of treatment are not met it may be discontinued following further discussion.
- The patient has the right to refuse treatment with fluids even if it is considered of clinical benefit.
- For further advice see the current Consent Policy.

5.6 Prescribing

- Subcutaneous fluids must be prescribed by a doctor or other independent prescriber on the appropriate community prescription chart used in that locality (as held by the district nurse) to authorise administration by the nurse.
- If supplies need to be obtained from a community pharmacy, an FP10 prescription must be written as well.
- The prescriber must provide clear, precise written instructions regarding the fluid, volume, route and rate of administration.
- The duration of infusion must be stated and the duration of treatment.
- A prescriber must review patient's condition within 24 hours of commencement and then as dictated by the patient's condition.
- Verbal instructions for commencement or changes to subcutaneous fluids prescription are not permitted.
- Fluids for infusion are licensed for the purpose of intravenous use only; therefore the use of these fluids for the purpose of subcutaneous infusion is outside the product licence. The effective use of infusion fluids in this way has been well documented and the prescriber will be conversant with such evidence. As such the prescriber must take full responsibility for their use and any adverse effects resulting from its use. It is important that the patient/carer is made aware of this issue as it forms part of the consent required for the procedure.

5.6.1 Fluids to be prescribed

Isotonic electrolyte solutions should be used e.g.

- Sodium chloride 0.9% solution (normal saline)
- Sodium chloride 0.18% with glucose 4% solution (dextrose/saline)
- The rate of infusion can be up to 100mls/hour with a maximum of 2 litres in 24 hours.

5.6.2 Hyaluronidase

Hyaluronidase is **not** recommended for use with subcutaneous fluids.

An enzyme called hyaluronidase is sometimes used during hypodermoclysis as it is thought it aids absorption from the subcutaneous tissue. However, the clinical evidence for this is sparse. There is no significant difference in the rate of infusion or the degree of side effects noted during administration of subcutaneous fluids with or

without hyaluronidase, therefore it is not considered to be cost effective. It can cause discomfort, local irritation and a risk of severe allergic reaction.

5.7 Supplies of fluid and equipment

- Supplies of fluids will depend on local arrangements, but these arrangements must ensure they are only used when prescribed and are stored and handled safely in accordance with PCT medicines policies.
- All equipment is provided by the community teams through the usual purchasing systems.

5.8 Preparation

- Advanced preparation of substances before their prescribed time is not acceptable.
- The fluid should be prepared immediately prior to administration.
- Medication prepared by one practitioner must not be administered by another practitioner except in their presence.
- The nurse must carefully examine the fluid to be administered ensuring it is correct and appears to be free from particles, contamination and faults and that it has not passed the expiry date.
- Medication must **not** be added to the subcutaneous infusion fluids (see also [5.6.2 Hyaluronidase](#)).
- Any surplus fluids must be discarded and must not be kept for future use.
- Medicines prescribed for an individual patient must not be used for another patient and should be returned to a pharmacy if no longer needed.

5.9 Administration

See [Appendix 1- Procedure for administration of subcutaneous fluids](#)

- The nurse administering subcutaneous fluids has a responsibility to ensure that he/she has knowledge and understanding of the medicine to be administered including indications for use and any special monitoring requirements, contraindications and complications of treatment.
- The nurse must be satisfied with the prescription, ensuring it is clear and unambiguous and appropriate for the patient's condition.
- If not satisfied refer to prescriber
- Subcutaneous fluids are administered via a butterfly needle or Teflon cannula and a standard intravenous giving set (20 drops per ml) – see Appendix 2.
- Fluids given subcutaneously should be gravity fed and not pumped.
- The nurse should delay administration and seek immediate advice if there are any doubts or concerns regarding either the prescriber's instructions or the patient's condition.

5.10 Site of administration

- Choose a suitable site that is oedema free with clean intact skin, away from bony prominences and joints, and previously irradiated skin.
- A fatty area will be best able to accommodate the infusion of a large volume of fluid.
- The flank, abdomen, inner thigh, scapula, axillary and lateral chest wall can be used.

- Patient comfort and safety, the need to mobilise and the lucidity/confusion of the patient should be considered when choosing the site.
- Do not administer into distal limbs.

5.11 Monitoring

- During administration of subcutaneous fluids the nurse must monitor the patient's condition, rate of infusion and the site of infusion, observing for any adverse reactions.
- To reduce the risk of complications the site should be observed regularly and rotated a minimum of every three days, or if adverse effects occur.
- The patient should be monitored every 4 hours for the first 24 hours. Subsequent monitoring is dependent on the patient's condition.
- If at any time during or following treatment, the patient's condition has not responded or has worsened; the nurse must arrange a medical review.
- The need for continued hydration must be evaluated daily in collaboration with the patient, family/carers and prescriber.

5.12 Complications / Adverse effects

- Potential complications at infusion site:
 - Local oedema and slow absorption from the infusion site resulting in localised swelling.
 - Soft tissue infection resulting in pain, tenderness, inflammation or bruising.
 - Abscess formation
 - Bleeding
- Systemic complications could include peripheral oedema, dyspnoea, heart failure or pulmonary oedema.
- 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 community nursing records. If necessary, the nurse may discontinue the fluid.
- If appropriate, the patient and family/carer should be advised of possible side effects and how to recognise complications and whom to contact for advice.
- Where appropriate, the patient/family/carer should be advised how to stop the infusion in the event of a problem, whether to disconnect it after the infusion has finished or whether to leave it in place until the next visit from the nurse.

(See Appendix 3

SUBCUTANEOUS FLUIDS - INFORMATION FOR PATIENTS).

5.13 Records

- Patient consent (see section 5.5)
- Subcutaneous fluids administered should be recorded in the patient's community nursing record or inpatient prescription chart.
- The records must include: date and time commenced, signature and printed name of nurse.
- Details of the access site and cannula used and observations of the site must be recorded.
- An evaluation of the need for subcutaneous infusion, the patient's response to treatment and monitoring should be documented.

6 References

- The Royal Marsden Hospital Manual of Clinical Nursing Procedures, Sixth Edition
- Standards for Infusion Therapy, Royal College of Nursing IV Therapy Forum, July 2003.
- National Council for Palliative Care, Artificial Nutrition and Hydration- Guidance in End of Life Care for Adults, May 2007

Appendix 1- Procedure for administration of subcutaneous fluids

Equipment

- Prescribed Fluid
- Intravenous Giving Set
- Cannula*
- Isopropyl Alcohol Swab
- Semi-permeable transparent film dressing
- Prescription
- Sharps Box (Disposal of Sharps in accordance with Waste Policy)
- Drip Stand

*The use of Teflon or Vialon cannula instead of metal needles further reduces insertion site complications and the need for frequent needle changes.

Procedure

Action	Rationale
<ul style="list-style-type: none"> • Check the identity of the patient • Prepare patient, explain procedure and obtain and document consent • Check fluid with prescription chart • Inspect the infusion fluid • Ensure all equipment is assembled • Wash hands in accordance with Handwashing Guidelines • Attach giving set to infusion fluid • Prime the giving set and cannula with the fluid to be infused • Assess the patient for suitable site where the needle will not be jostled • If required, clean the injection site with swab saturated with Isopropyl alcohol 70% and allow to dry • Insert the cannula as for subcutaneous injection • If blood appears in the line on insertion of the needle, withdraw immediately and repeat process • Anchor the line with tape • Cover with transparent semi-permeable film dressing • Make sure the patient is comfortable • Set infusion at prescribed rate and record time and date commenced on fluid chart (see appendix 2) 	<ul style="list-style-type: none"> • To minimise risk of errors and ensure correct patient • To ensure patient understands procedure and agrees to co-operate • To ensure correct type and volume is administered • To ensure clear, colourless and in date • To avoid unnecessary stress to the patient • To comply with Prevention and control of infection guidelines • To deliver fluid via giving set • To prevent air bubble formation in the cannula • To provide a comfortable and safe area for fluid absorption • To reduce the risk of site contamination • To provide a comfortable and safe method of fluid administration • To ensure a blood vessel has not been punctured • To prevent kinking at insertion site and ensure security of line • To secure the line and protect site from infection • To maintain the patient's dignity • To ensure fluid is administered as prescribed

Appendix 2 Calculation/Rate of Subcutaneous Infusion

Fluids given subcutaneously should be gravity fed and not pumped

To calculate the volume in drops, you need to know how many drops of the fluid are contained in a millilitre (ml). This information is printed on the packaging of the administration set. A standard intravenous giving set delivers a rate of **20 drops per ml**.

The volume in mls is multiplied by the number of drops per ml to give the volume in drops. The rate in minutes is calculated by multiplying by 60.

To set up a manually controlled drip accurately by eye, count the number of drops per minute, which equates to the amount prescribed.

The formula for calculation is:

$$\text{Rate} = \frac{\text{Volume (in drops)}}{\text{Time (in minutes)}}$$

Example: To administer 1000ml over 12 hours using a giving set that delivers 20drops/ml the calculation would be:

$$\frac{1000 \text{ mls (volume of Infusion)} \times 20 \text{ (drops per ml)}}{12 \text{ (hours)} \times 60 \text{ (mins)}} = \frac{20,000}{720} = 27.7 \text{ drops/ minute}$$

NB: Since we are trying to work out a number of drops, round up to a whole number i.e. 28

Appendix 3

SUBCUTANEOUS FLUIDS - INFORMATION FOR PATIENTS

The District Nurse has discussed with you the reasons why you are having subcutaneous fluid treatment.

In order for us to give you the fluid, it is necessary for you to have a small hollow plastic tube inserted under the skin in an accessible part of your body such as your tummy, thigh, upper arm or chest.

This plastic tube is called a **CANNULA**.

You will have a waterproof dressing over the cannula to help it stay in place.

A line is then attached to a bag of fluid which drips slowly into the cannula. The bag contains a solution designed to give you extra fluid when you are unable to drink enough. It usually only continues for a short time and you should still try to drink as much fluid as you are able to.

The District Nurse will visit you regularly to monitor how you are and to check the bag of fluid and the cannula.

They will inform you when the next visit will take place.

IF YOUR CANNULA COMES OUT

Don't worry because this should not cause you any problems.

Place the cannula and the bag of fluid in a bowl until the nurse arrives.

Cover the skin where it came out with a small plaster.

Contact the District Nurse to have the cannula replaced.

IF THE CANNULA SITE IS PAINFUL, RED, SWOLLEN OR IS LEAKING

Contact the District Nurse for help and advice.

IF YOU HAVE ANY QUESTIONS PLEASE CONTACT YOUR LOCAL DISTRICT NURSING TEAM

CONTACT DETAILS

Between the hours of to please telephone your local District Nursing Team on:

Between to please telephone the Out of Hours Community Service onwho will contact the Nurse on duty.