PROCEDURE FOR THE ADMINISTRATION OF SUBCUTANEOUS FLUIDS BY COMMUNITY AND PRIMARY CARE ASSESSMENT UNIT NURSES

<table>
<thead>
<tr>
<th>First Issued</th>
<th>Issue Version</th>
<th>Purpose of Issue/Description of Change</th>
<th>Planned Review Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One</td>
<td>To ensure a safe and effective procedure for the administration of subcutaneous fluids by all Community and Primary Care Assessment Unit (PCAU) Nurses</td>
<td>2014</td>
</tr>
</tbody>
</table>

Named Responsible Officer:-
Medicines Governance Pharmacist
Quality and Governance Service

Approved by
Quality Patients Experience and Risk Group

Date
October 2012

Section:- Medicines Management
MM SOP N° 01

Target Audience
All Community and PCAU Nurses

UNLESS THIS VERSION HAS BEEN TAKEN DIRECTLY FROM THE TRUST WEB SITE THERE IS NO ASSURANCE THIS IS THE CORRECT VERSION
### CONTROL RECORD

<table>
<thead>
<tr>
<th>Title</th>
<th>Procedure for the Administration of Subcutaneous fluids by Community and Primary Care Assessment Unit Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To ensure a safe and effective procedure for the administration of subcutaneous fluids by Community and PCAU Nurses</td>
</tr>
<tr>
<td>Author</td>
<td>Quality and Governance Service (QGS)</td>
</tr>
<tr>
<td>Equality Assessment</td>
<td>Integrated into procedure</td>
</tr>
<tr>
<td>Subject Experts</td>
<td>Annie Baker</td>
</tr>
<tr>
<td>Document Librarian</td>
<td>QGS</td>
</tr>
<tr>
<td>Groups consulted with :</td>
<td>Medicines Management Group</td>
</tr>
<tr>
<td>Infection Control Approved</td>
<td>15.06.2012</td>
</tr>
<tr>
<td>Date formally approved by</td>
<td>October 2012</td>
</tr>
<tr>
<td>Quality, Patient Experience and Risk Group</td>
<td></td>
</tr>
<tr>
<td>Method of distribution</td>
<td>Email</td>
</tr>
<tr>
<td>Archived</td>
<td>Date:</td>
</tr>
<tr>
<td>Access</td>
<td>Via QGS</td>
</tr>
</tbody>
</table>

### VERSION CONTROL RECORD

<table>
<thead>
<tr>
<th>Version Number</th>
<th>Author</th>
<th>Status</th>
<th>Changes / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version 1</td>
<td>A Baker</td>
<td>R &amp; TC</td>
<td>To update procedure with the current types of fluids used for subcutaneous infusion and use of Saf-T-Intima cannula</td>
</tr>
</tbody>
</table>

Status – New / Revised / Trust Change
PROCEDURE FOR THE ADMINISTRATION OF SUBCUTANEOUS FLUIDS

INTRODUCTION

Hypodermoclysis is a technique used for the subcutaneous administration of fluids and electrolytes in order to achieve fluid maintenance or replacement when adequate oral fluid intake cannot be maintained (Dougherty and Lister 2011). Hypodermoclysis is a relatively safe, reliable and cost effective method, suitable for use in the community.

AIM

The aim of this procedure is to provide a framework to ensure that patients in the community setting or PCAU who require the administration of subcutaneous fluids receive safe effective care.

PROCEDURE OUTCOME

All registered nurses working for the Trust will comply and follow this procedure for the administration of subcutaneous fluids for patients within their care who require this intervention.

TARGET GROUP

All registered nurses employed by the Trust who are required to undertake administration of subcutaneous infusions as part of their role and job description (excluding bank staff)

TRAINING

All staff within the Trust are required to follow the Trust’s mandatory training matrix and their service core training matrix

RELATED POLICIES – see relevant policies and procedures

ADVANTAGES OF SUBCUTANEOUS FLUIDS

- Side effects are few and not generally significant
- It is a relatively easy procedure which can be carried out at home, reducing the need for hospitalisation
- Low cost
- Less likely to cause fluid overload

INDICATIONS

Subcutaneous infusion is indicated for maintaining adequate short term hydration in:

- Patients who are unable to take adequate fluids orally or for excessive fluid loss
- Who are mildly or moderately dehydrated
- And in whom it is difficult or impractical to insert an intravenous (IV) line.

Administration of fluids is appropriate in the following circumstances:

- Acute illness such as mild infections, vomiting and diarrhoea
• Mild or moderate dehydration usually indicated by urea and electrolyte imbalance where the oral or intravenous methods of rehydration are not possible or inappropriate

For administration in Palliative Care Patients see section below

CONTRA-INDICATIONS

Subcutaneous infusions should not be considered in the following circumstances:

• Patients needing rapid administration of fluids e.g. shock, circulatory failure, severe dehydration
• Patients with clotting disorders
• Patients who have problems with fluid overload, e.g. congestive cardiac failure, marked oedema
• In any patient where precise control of fluid balance is clinically important
• Patients who require more than 3 litres of fluid in a 24 hour period

ADMINISTRATION OF FLUIDS FOR PALLIATIVE CARE PATIENTS

The Liverpool Care of the Dying Pathway states that inappropriate interventions should be discontinued in the last 48 hours. Artificial hydration such as the administration of subcutaneous fluids has been classified as medical treatment in common law, although this definition has not been universally accepted (Smith, J. C., Roberts, A., Moorhead, L., Smith. K., Tate, T. 2010).

Any requests or decisions regarding the administration of subcutaneous fluids in this context should be discussed with the multi-disciplinary team, the patient and their family where appropriate (Dougherty and Lister 2011, Smith et al 2010).

Subcutaneous infusion should only be considered for relief of symptoms that cannot be relieved in any other way. The main symptom is thirst, although subcutaneous fluids can also be used to relieve dry mouth, weakness, postural hypotension and dysphagia. A time-limited trial of hydration to assess if it improves symptoms may be appropriate in some patients (Smith et al, 2010).

MONITORING REQUIREMENTS

Consideration for administration should be symptom led, but blood tests for urea and electrolytes must be done to confirm appropriateness, registered nurse practitioner to liaise with hospital or General Practitioner

• Patients who require hypodermoclysis must be assessed and prescribed subcutaneous fluids by a Medical Practitioner and reviewed every 48 hours by Prescriber, taking account of the patient’s condition, prognosis and wishes. The prescriber remains responsible for the review of care and the ordering of any blood tests
• The Trust only uses Sodium Chloride 0.9% or Sodium Chloride 0.18% + 4 % Dextrose, which are administered via a Sat-T-Intima cannula and an intravenous administration giving set. This is a relatively safe method of artificial hydration and subcutaneous administration of fluids has fewer risks than intravenous fluid administration (Dougherty and Lister, 2011).
RESPONSIBILITIES OF NURSING STAFF

- A patient who requires subcutaneous fluids at home must have someone staying with them at all times.
- Check the container and fluid show no signs of obvious faults or contamination
- Check Patient Medicines Administration Chart (PMAC), that the correct fluid has been prescribed
- Saf-T-Intima cannula, the cannula can remain in place up to seven days
- Inspect the site for infusion and complete subcutaneous checklist reporting any abnormalities and documenting any concerns
- Fluids should be examined for particles, cloudiness or change in colour

RESPONSIBILITY OF THE PRESCRIBER

- The medical prescriber remains responsible for review of care and monitoring of electrolyte balance

SUITABLE SITES FOR INFUSION

- Abdomen
- Chest
- Lateral aspect of upper arm or thigh

UNSUITABLE SITES FOR INFUSION

- Lymphoedematous tissue
- Skin that has been recently irradiated
- Sites with skin damage, swelling or scarring
- Where there is an existing rash
- Peripheral limbs, i.e. below the knee or below the elbow
- Bony prominences
- Areas of infection
- Sites near a joint

SIDE EFFECTS OF ADMINISTRATION OF SUBCUTANEOUS FLUIDS

- Pain
- Bruising
- Local oedema
- Erythema
- Local inflammation or infection

RECOMMENDED INFUSION RATES

- Usual rate only 1ml per minute per site
- Maximum of 1.5 litres in 24 hours using a single site or 3 litres in 24 hours if using two infusion sites (Dougherty and Lister, 2011)
- Subcutaneous fluids should only be infused via gravity using a standard IV giving set connected to a Saf-T-Intima cannula via a luer lock connection
Drop Calculation Formula

Number of drops per minute = Volume of fluid (mls) x No. of drops per ml (giving set) / Prescribed duration of Infusion (minutes)

For Example:

To calculate the number of drops per minute for a 1000ml bag of sodium chloride 0.9% given over 24 hours where the giving set delivers 20 drops per ml

Number of drops per minute = 1000 (mls) x 20 (giving set) / 24 (hours) x 60 (minutes)

Number of drops per minute = 13.9 drops per minute

The above formula may be used to calculate the required drops per minute rate, but the number of drops per ml for the particular giving set being used must be known, this can usually be found on the administration set packaging

PROCEDURE FOR THE ADMINISTRATION OF SUBCUTANEOUS FLUIDS

Equipment for insertion of cannula and administration of subcutaneous fluids

Infusion fluid as prescribed by a Medical Practitioner – No additives to be added to infusion

Single use disposable apron
Single use disposable non sterile gloves
If indicated single use sterile dressing pack
Point of Use Disposal System (POUDS) tray
Patient Medicines Administration Chart
Saf-T-Intima cannula
Standard intravenous administration giving set as used by service
2% chlorhexidine and 70% alcohol impregnated swab/applicator (Chloraprep)
Sharps container
Semi-permeable film dressing
Nursing Health Records
Stand for administration of fluids
Trust approved cleaning wipe

Equipment for removal of a cannula:

Single use disposable apron
Single use disposable non sterile gloves
Point of Use Disposal System (POUDS) tray
If indicated single use disposable sterile dressing pack
Suitable sterile dressing
Trust approved cleaning wipe
Sharps container
## PROCEDURE

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbally confirm the identity of the patient by asking for their full</td>
<td>To avoid mistaken identity</td>
</tr>
<tr>
<td>name and date of birth. If the patient is unable to confirm, check</td>
<td></td>
</tr>
<tr>
<td>identity with family/carer</td>
<td></td>
</tr>
<tr>
<td>Introduce yourself as a staff member and any colleagues involved at the</td>
<td>To promote mutual respect and put the patient</td>
</tr>
<tr>
<td>contact</td>
<td>at their ease</td>
</tr>
<tr>
<td>Wear identity badge which includes name status and designation</td>
<td>For patients to know who they are seeing and to</td>
</tr>
<tr>
<td></td>
<td>promote mutual respect</td>
</tr>
<tr>
<td>Ensure verbal consent for the presence of any other third party is</td>
<td>Students for example, as the patient has the</td>
</tr>
<tr>
<td>obtained</td>
<td>choice to refuse</td>
</tr>
<tr>
<td>Explain procedure to patient including risks and benefits and gain</td>
<td>To ensure patient understands procedure and</td>
</tr>
<tr>
<td>valid consent.</td>
<td>relevant risks</td>
</tr>
<tr>
<td>Establish patient has no known allergies, check in patient’s records</td>
<td>To reduce allergic reactions</td>
</tr>
<tr>
<td>and also ask patient/family of any known allergies</td>
<td></td>
</tr>
<tr>
<td>Ensure patient is comfortable and maintain patient privacy</td>
<td>To maintain privacy and dignity</td>
</tr>
<tr>
<td>Check the PMAC specifies the following information:</td>
<td>Effective medicines management and maintain</td>
</tr>
<tr>
<td>Patient’s full name</td>
<td>patient safety</td>
</tr>
<tr>
<td>Patient’s date of birth (DOB)</td>
<td></td>
</tr>
<tr>
<td>NHS Number</td>
<td></td>
</tr>
<tr>
<td>Prescriber’s signature and date prescribed</td>
<td></td>
</tr>
<tr>
<td>Name and strength of fluid to be administered</td>
<td></td>
</tr>
<tr>
<td>Volume and rate of administration of fluid to be administered</td>
<td></td>
</tr>
<tr>
<td>Route of administration</td>
<td></td>
</tr>
<tr>
<td>The allergy status of the patient</td>
<td></td>
</tr>
<tr>
<td>Check the name, strength and volume of the infusion fluid against the</td>
<td>To ensure the correct type and quantity of</td>
</tr>
<tr>
<td>PMAC to be administered</td>
<td>fluid are administered</td>
</tr>
<tr>
<td>Check the expiry date of the infusion bag</td>
<td>To prevent an ineffective or toxic compound</td>
</tr>
<tr>
<td>Check the packaging is intact and inspect the container and contents</td>
<td>being administered to the patient</td>
</tr>
<tr>
<td>in a good light for cracks or punctures</td>
<td></td>
</tr>
<tr>
<td>Inspect the fluid for discolouration, haziness and crystalline or</td>
<td>To prevent any toxic or foreign matter being</td>
</tr>
<tr>
<td>particulate matters</td>
<td>infused into the patient</td>
</tr>
<tr>
<td>Calculate the correct drip rate setting using the drop calculation</td>
<td>To monitor rate and ensure fluid is infused</td>
</tr>
<tr>
<td>formula</td>
<td>safely</td>
</tr>
<tr>
<td>Decontaminate hands</td>
<td>To reduce the risk of transient micro-organisms</td>
</tr>
<tr>
<td>Gather all equipment</td>
<td>on the healthcare worker’s hands</td>
</tr>
<tr>
<td>Clean POUDDS tray using Trust approved cleaning wipe or if indicated</td>
<td>To create clean work area, promote asepsis</td>
</tr>
<tr>
<td>open sterile dressing pack onto a clean area and place all sterile</td>
<td>and prevent contamination of key parts</td>
</tr>
<tr>
<td>single use equipment required within aseptic field. Maintaining key</td>
<td></td>
</tr>
<tr>
<td>part protection at all times.</td>
<td></td>
</tr>
<tr>
<td>Decontaminate hands</td>
<td>To reduce the risk of transient micro-organisms</td>
</tr>
<tr>
<td>Task</td>
<td>Purpose</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Apply single use disposable apron</td>
<td>To protect clothing or uniform from contamination and potential transfer of micro-organisms</td>
</tr>
<tr>
<td>Apply single use non sterile gloves or if indicated apply single use disposable sterile gloves after cleaning of skin</td>
<td>To protect hands from contamination with organic matter and transfer of micro-organisms</td>
</tr>
<tr>
<td>Select a site that has no evident tissue/skin damage on the abdomen, chest or lateral aspect of upper arm or thigh</td>
<td>To avoid tissue damage and infection (DH 2007)</td>
</tr>
<tr>
<td>Clean area of chosen site with 2% chlorhexidine and 70% alcohol impregnated swab (Chloraprep) for a minimum of 30 seconds and allow to dry</td>
<td>To reduce the risk of transfer of any transient micro-organisms and resident micro-organisms from skin to subcutaneous tissues</td>
</tr>
<tr>
<td>Gently hold skin fold on the site chosen</td>
<td>In preparation for administration</td>
</tr>
<tr>
<td>Prime administration set and Saf-T-Intima cannula with prescribed fluid to be administered</td>
<td></td>
</tr>
</tbody>
</table>

**INSERTION OF SAF-T-INTIMA CANNULA**

To prime Saf-T-Intima cannula remove small clear plastic cap from the “Y” junction of the cannula and prime the cannula and the line with the appropriate flush.

- Grasp ridged yellow side wings of the cannula between thumb and index finger,
- Remove needle sheath from Saf-T-Intima cannula making sure the eye of the needle is facing upwards at the sharpest point to enter the skin.

Using an Aseptic Non Touch Technique insert BD Saf-T-Intima cannula at 45º angle, cover the cannula and wings only with transparent dressing.

- Hold wings of cannula firmly and pull back on the introducer until you see four distinct parts (needle encasements, wire and white introducer).
- Grip “Y” connection with one hand and the yellow needle encasement with the other hand.
- With a gentle pulling action, pull the needle encasement away from the “Y” connection.

This should leave a injectable bung in place, pull the needle encasement away and dispose in sharps container.

If blood appears in the line on insertion of the needle withdraw immediately and repeat the process at another site with a new cannula.

Commence infusion and adjust the drops per minute to the correct length of time for infusion as per prescribed rate of administration.

The administration line should be labelled with the date and time of commencement, and this should also be documented in the patient’s health records including batch number and expiry date.

When commencing subcutaneous fluids and at each subsequent visit complete checklist for the administration of subcutaneous fluids.

Clear all equipment away disposing of clinical waste as per Trust policy. Clean equipment in line with Trust policy.

To ensure effective hypodermoclysis and ensure blood vessel has not been punctured and prevent an haematoma.

To prevent over hydration and tissue damage.

To identify time and date for change of line requirement.

Decontamination of medical equipment is essential for the effective delivery of patient care.
**On completion of the procedure remove and dispose of Personal Protective Equipment (PPE) to comply with waste management policy**

To prevent cross infection and environmental contamination

**Decontaminate hands following removal of PPE**

To remove any accumulation of transient and resident skin flora that may have built up under gloves and possible contamination following removal of PPE

**Monitor patient’s general condition and continue to monitor Urea and Electrolytes at intervals indicated by Medical Practitioner**

To prevent adverse effects of Hypodermoclysis

**Document on the record of treatment and document all care in the patient’s nursing records**

In accordance with Trust Record Keeping Policy Working in partnership with patient

**Discuss future contact arrangements**

**REMOVAL OF A CANNULA**

The cannula must be removed if no further subcutaneous fluids are required or if there are clinical signs of infection.

To prevent the introduction of infection

**Gather all equipment**

To create clean work area, promote asepsis and prevent contamination of key parts

**Clean tray using Trust approved cleaning wipe or if indicated open sterile dressing pack onto a clean area and place all sterile single use equipment required within aseptic field. Maintaining key part protection at all times.**

**Decontaminate hands prior to procedure**

To reduce the risk of transient micro-organisms on the healthcare worker’s hands

**Apply single use disposable apron**

To protect clothing or uniform from contamination and potential transfer of micro-organisms

**Apply single use disposable non-sterile gloves, or if indicated single use sterile gloves**

To protect hands from contamination with organic matter and transfer of micro-organisms

**When removing the cannula the device should be removed carefully using a slow, steady movement and pressure should be applied.**

The site should be inspected and the site covered with a sterile dressing.

The cannula integrity should be inspected to ensure the complete device has been removed

**Dispose of clinical waste as per Trust policy**

To prevent cross infection and environmental contamination

**On completion of the procedure remove and dispose of Personal protective Equipment (PPE) to comply with Management of Healthcare Waste Policy**

To prevent cross infection and environmental contamination

**Decontaminate hands**

To reduce the risk of transient micro-organisms on the healthcare worker’s hands

**Document on the record of treatment and document all care in the patient’s nursing records**

In accordance with Trust Record Keeping Policy Working in partnership with patient
WHERE TO GET ADVICE FROM

Trust staff need to contact their Line Manager or Team Leader if further guidance and clarification is required.

INCIDENT REPORTING

Clinical incidents or near misses must be reported using Trust Incident Reporting System

SAFEGUARDING ADULTS

In any situation where staff may consider the patient to be a vulnerable adult, they need to follow the Trust Safeguarding Adult Policy and discuss with their line manager and document outcomes.

EQUALITY ASSESSMENT

During the development of this protocol the Trust has considered the clinical needs of each protected characteristic (age, disability, gender, gender reassignment, pregnancy and maternity, race, religion or belief, sexual orientation). There is no evidence of exclusion of these named groups.
If staff become aware of any clinical exclusions that impact on the delivery of care, the incident must be reported using the Trust Incident Reporting System an appropriate action plan put in place.

REFERENCES

