### PROCEDURE FOR CANNULATION FOR WIRRAL ADMISSION PREVENTION SERVICE

<table>
<thead>
<tr>
<th>First Issued</th>
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</tr>
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<tbody>
<tr>
<td>May 2007</td>
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<td>To ensure a safe and effective procedure for intravenous cannulation by Wirral Admission Prevention Service (WAPS)</td>
<td>2012</td>
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**Named Responsible Officer:-**

Service Improvement Team

**Approved by**

Nursing Policy Group

**Date**

April 2009

**Section :- Diagnostics**

D N° 01

**Impact Assessment Screening Complete**

Date: April 2009

**Full Impact Assessment Required Y/N**

Y/N

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UNLESS THIS VERSION HAS BEEN TAKEN DIRECTLY FROM THE NHS WIRRAL WEB SITE THERE IS NO ASSURANCE THIS IS THE CORRECT VERSION
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PROCEDURE FOR CANNULATION

INTRODUCTION

Intravenous therapy is an important part of patient care and the majority of intravenous drugs are administered by nurses (Scales 2008). Peripheral intravenous cannulation is a commonly performed procedure and has an associated risk of infection because of the potential for direct microbial entry into the bloodstream. Intravenous cannulation may be contaminated by the patient’s own skin flora at the insertion site or by the introduction of other organisms via the cannula hub or injection port Department of Health (DH 2007).

AIM

The aim of this procedure is to provide a framework and guidance for the appropriate assessment and selection of peripheral intravenous cannulation sites. The insertion of a cannula and the care of the cannula site are important in order to reduce the risk of infection, discomfort, trauma and complications to the patient.

PROCEDURE OUTCOME

All registered nurses will comply with this procedure and will maintain their competency in carrying out intravenous cannulation for patients who require this intervention.

TARGET GROUP

All registered nurses employed by NHS Wirral for Wirral Admission Prevention Service who are required to carry out this procedure as part of their role and job description (excluding bank staff)

TRAINING

All new starters will undergo training within the first six months. New staff with transferable skills will be assessed using the competency framework during local induction.

All staff will complete a competency framework within six months of joining the service and this should be updated every two years. If a member of staff is absent from work for 6 months or more, their competency will have to be reassessed and if required, retraining undertaken.
RELATED POLICIES

- PCT Health Records Policy
- Standard Operating Procedure for Medicine Administration in community nursing
- Safe Storage and Administration of Medicines Policy
- Infection Control Policies
- Medical Devices Policy
- Incident Reporting Policy
- Sudden Death Policy
- The Nursing and Midwifery Council (2008) Code of professional conduct: standards for conduct, performance and ethics
- Nursing and Midwifery Council (2007) Standards for Medicine Management
- PCT Record Keeping Procedure for Community Nursing
- Consent Policy
- Health and Safety Policies
- Procedure for community nurses managing an anaphylactic emergency
- Procedure for the administration of intravenous bolus drugs
- Standard Operating Procedure for the administration of Intravenous antibiotics

NB Always use most current versions of PCT and NMC policies as may be superseded at any time

INDICATIONS FOR THE INSERTION OF A CANNULA

The WAPS team may only insert a peripheral cannula for the administration of intravenous drugs as prescribed, and to flush cannula pre and post administration of medicines.

ASSESSMENT FOR CANNULATION TO INCLUDE:

The advantages of using a peripheral cannula are that they are usually easy to insert and have few associated complications; however, they are associated with both mechanical and chemical phlebitis and often require constant resiting (RCN 2005). Therefore, it is important to check the cannula site at each visit to monitor for phlebitis and record findings on cannula checklist.

- The patient meets eligibility criteria for intravenous cannulation
- The patient’s condition and diagnosis warrants administration of antibiotics
- Assessing vascular condition of veins in both upper limbs, followed by palpation of the most appropriate vessel
- Infusion device history
- Type and duration of treatment
- Potential complications
- Allergies
SUITABLE SITES FOR INSERTION:

- Preferred sites
  - Cephalic vein
  - Basilic vein

- Alternative sites
  - Metacarpal vein
  - Median Cubital

The Department of Health (DH 2007) recommends a modified clean technique for peripheral cannulation. NHS Wirral supports its staff in the use of a single use disposable sterile dressing pack within the patients’ home to achieve a clean technique.

In adults the superficial veins of the upper extremities of the body are used for cannulation because they are located just beneath the skin.

Site selection should include an assessment of the patient’s general condition and accessibility of their veins in both upper limbs, followed by palpation of the most appropriate vessels.

Palpation is necessary to determine the condition of the vein as well as to differentiate veins from arteries. Thrombosed vessels should be detected by their hard, non-compliant texture.

If possible use veins on the patient’s non-dominant side. Veins in the lower extremities should not be routinely used in adults due to the risk of embolism and thrombophlebitis Royal College of Nursing (RCN 2005).

For selection of an appropriate cannula refer to Appendix 2

A good vein is:

- Soft
- Bouncy
- Refills when depressed
- Well supported
- Visible
- Straight
The following veins should be avoided:

- Small and visible but impalpable
- Irritated from previous use
- Tortuous/mobile
- Sclerosed
- Fibrosed
- Thrombosed
- Inflamed
- Dialysis sites
- Painful/sore or bruised
- Hard veins
- Thin/fragile
- Near bony prominences
- Areas of joint flexion
- In the lower extremities (increased risk of thrombophlebitis and pulmonary emboli)
- Close to arteries or deeper lying vessels
- Have under gone multiple punctures

Additional factors affecting the choice of vein include:

- Age of patient
- Previous use and condition of veins
- Condition of patient i.e. dehydrated, shock or mastectomy
- Amputation, fracture or paralysis
- Type and length of treatment
- Patient preference
- Obesity/malnourishment
- Medication i.e. warfarin, steroids
- Positioning of patient
- Impaired lymphatic drainage

**PROCEDURE FOR THE INSERTION OF A CANNULA**

**Equipment:**

- Single use disposable sterile dressing pack
- Cannula: smallest cannula appropriate for fluid being infused and duration of the infusion
- Tourniquet
- 2% chlorhexidine and 70 % Alcohol impregnated swab (Chloraprep)
- Semi permeable transparent sterile dressing
- Sharps box
- 10ml Syringe
- Filter needle
- Prescribed Sodium chloride 0.9% flush (10mls)
- Medicine Administration Chart
- Nursing records
<table>
<thead>
<tr>
<th>Activity</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm patients identity by asking for full name and date of birth, clarify with family/carer if patient unable to do so</td>
<td>To ensure correct patient and avoid error in patient identification</td>
</tr>
<tr>
<td>Establish patient has no known allergies, check in patients records and also ask patient/family of any known allergies</td>
<td>To reduce allergic reactions</td>
</tr>
<tr>
<td>Staff members to introduce themselves Explain and discuss the procedure with the patient and relevant family members/carers.</td>
<td>To ensure understanding of the procedure and allow time for patient to ask questions</td>
</tr>
<tr>
<td>Obtain valid and informed consent and document in the nursing record.</td>
<td>To gain patient consent for the procedure</td>
</tr>
<tr>
<td></td>
<td>To comply with trust polices</td>
</tr>
<tr>
<td>Ensure patient is comfortable and in a private area</td>
<td>To maintain privacy and dignity</td>
</tr>
<tr>
<td>Check prescription card is up to date and clearly written, stating the prescribed flush.</td>
<td>Effective medicines management</td>
</tr>
<tr>
<td>Decontaminate hands as per infection control policy</td>
<td>To ensure that no healthcare associated micro-organisms are transferred via the hands</td>
</tr>
<tr>
<td>Open dressing pack and prepare equipment for the procedure onto the sterile field. Check expiry dates and packaging</td>
<td>Reduce risk of transfer of any transient micro-organisms. To ensure sterility</td>
</tr>
<tr>
<td>Put on apron</td>
<td>To reduce the risk of acquiring and transmitting of micro-organisms</td>
</tr>
<tr>
<td>Select suitable site that has no evident tissue/skin damage</td>
<td>To avoid tissue damage and infection</td>
</tr>
<tr>
<td>Support the patients arm. Apply a tourniquet 4-6” above intended site, restricting venous blood flow but not arterial blood flow, allow the veins to stand. Palpate the vein that is to be cannulated</td>
<td>To ensure ease of access to the vein</td>
</tr>
<tr>
<td>Cleanse area of chosen site for at least 30 seconds with alcohol swab (Chloraprep) and allow to dry naturally for 30 seconds. Do not repalpate the vein or touch insertion site</td>
<td>Reduce risk of transfer of any transient micro-organisms from skin to subcutaneous tissues or bloodstream (Pratt et al 2007)</td>
</tr>
<tr>
<td>Apply sterile gloves</td>
<td>To prevent contamination of sterile equipment</td>
</tr>
<tr>
<td>Select appropriate cannula according to vein size and fluid to be infused. The smallest gauge cannula suitable for the purpose should be selected</td>
<td>To minimise trauma to patient and thrombi development. Small cannula permit haemodilation and reduce damage to intima of vein</td>
</tr>
<tr>
<td>Stabilise the vein and insert the tip of the cannula at approximately 15 degrees angle, when blood</td>
<td>Patient comfort, and ease of cannula insertion</td>
</tr>
</tbody>
</table>
appears in the chamber this is known as flashback and this indicates that that the initial entry into the vein has been successful. The cannula should be advanced gently and smoothly into the vein whilst withdrawing needle . To prevent mobilisation of the vein (Dougherty and Lister 2008)

<table>
<thead>
<tr>
<th>Do not reinsert needle into cannula once withdrawn (MHRA 2007).</th>
<th>Reinsertion of needle could cause tip of cannula to be severed/dislodged in vein (Dougherty and Lister 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release and remove tourniquet. Correctly place in sharps bin.</td>
<td>Prevent sharps injury</td>
</tr>
<tr>
<td>Apply a sterile semi permeable film dressing</td>
<td>To secure cannula</td>
</tr>
<tr>
<td>Flush cannula with sodium chloride 0.9% 5mls in a 10ml syringe using a pulsating technique finishing with a positive pressure. Check there is none of the following: Resistance to flow Pain at site Swelling at site or leakage</td>
<td>To maintain patent safe cannula within the vein (RCN 2005, Dougherty and Lister 2008)</td>
</tr>
<tr>
<td>The appropriate needle free access system must be connected to the cannula through which medication or fluids can be administered</td>
<td>To prevent blood leakage and contamination</td>
</tr>
<tr>
<td>Ask patient if site feels comfortable</td>
<td>Working in partnership with patient</td>
</tr>
<tr>
<td>Clear all equipment away disposing of clinical waste as per trust policy</td>
<td>To comply with PCT clinical waste policy</td>
</tr>
<tr>
<td>Remove and dispose of gloves and apron. Decontaminate hands.</td>
<td>To prevent contamination of items used following procedure. To remove any accumulated transient skin flora that may have built up under the gloves</td>
</tr>
<tr>
<td>Record date and time cannula inserted into the patients record Complete intravenous cannulation check list</td>
<td>To inform staff how long the cannula has been in place</td>
</tr>
<tr>
<td>Document on the record of treatment and in the nursing care plan.</td>
<td>PCT Health Records Policy Working in partnership with patient</td>
</tr>
<tr>
<td>Discuss future contact arrangements</td>
<td></td>
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</tbody>
</table>

**NB:** If the nurse fails to cannulate following two attempts the community nurse to contact another practitioner on duty. In extreme circumstances and with the patients permission 4 attempts may be made

If still unsuccessful contact the referrer (or appropriate alternative) at the earliest possible opportunity, if cannulation is still indicated consider an appropriate alternative location e.g. Accident and Emergency Department. Further unsuccessful attempts may limit future vascular access and to cause unnecessary trauma to patient.
Emergency, Clinical Decision Unit for cannulation. For each attempt at cannulation a new sterile cannula must be used and a new site chosen, the new site must be cleaned with an alcohol impregnated wipe as above and a new pair of sterile gloves worn.

Repeat the procedure

Document the outcome of the procedure in the patient’s health record.

To comply with PCT health records policy

SITE MONITORING AT EACH VISIT

Complications can include:

- Phlebitis
- Entry site infection
- Bloodstream infection

Patients under the care of Wirral Admission Prevention Service will have the site checked at each visit, observing for signs of pain, tenderness, redness, swelling and general systemic infection.

Staff will complete cannulation checklist and document if symptoms show signs of phlebitis and grade symptoms according to phlebitis score. A copy of the checklist is available on the PCT intranet site.

Staff must liaise with General Practitioner or Out Of Hours Service to discuss treatment options if required.

Patients and carers must be informed on when to report any concerns and who to contact.

REMOVAL/REPLACEMENT OF CANNULA

- The cannula must be removed if no further intravenous treatment is required or if there are signs of infection.
- Cannula should be replaced if venous access is still required and the cannula has been in situ for 72 hours. However, if the patient has poor venous access, a risk assessment must be carried out and following discussion with the patient, the cannula may stay in situ for a further 24 hours, as long as there are no clinical signs of phlebitis or infection. The rationale and all discussions must be documented in the patient’s health records
- Date and reason for the removal of the cannula must be documented in the care plan.
- The dressing should be observed each visit to ensure that it is intact, clean and dry.
- Administration sets required for intermittent infusion that are disconnected must be discarded as they are single use items

PROCEDURE FOR CANNULATION

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In complex cases nurses are advised to contact either infection control nurses or the managing clinician for guidance depending on the clinical situation. All advice and changes to care plans will be documented.

CLINICAL INCIDENTS

Any related incidents arising from carrying out this procedure which may involve a clinical error or near miss must be reported following the PCT Incident Reporting Policy.

REFERENCES


CONSULTATION

All nursing policy group members
Infection control
Nurse managers
APPENDIX 1

DIAGRAM OF MAIN VEINS
## APPENDIX 2

### SIZE AND MANUFACTURES RECOMMENDED USE OF PERIPHERAL INTRAVENOUS CANNULAS

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<thead>
<tr>
<th>COLOUR</th>
<th>SIZE</th>
<th>USES</th>
</tr>
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<tbody>
<tr>
<td>Brown</td>
<td>14G</td>
<td>Rapid transfusions of whole blood, resuscitation settings</td>
</tr>
<tr>
<td>Grey</td>
<td>16G</td>
<td>Rapid transfusion of whole blood or blood products</td>
</tr>
<tr>
<td>White</td>
<td>17G</td>
<td>Used for infusion of large volumes of fluid or viscous fluid</td>
</tr>
<tr>
<td>Green</td>
<td>18G</td>
<td>Blood transfusions or large volumes of fluid</td>
</tr>
<tr>
<td>Pink</td>
<td>20G</td>
<td>Patients receiving up to 2 or 3 litres of fluid a day, patients on long term medication</td>
</tr>
<tr>
<td>Blue</td>
<td>22G</td>
<td>Blood transfusions, most medications and fluids</td>
</tr>
<tr>
<td>Yellow</td>
<td>24G</td>
<td>Paediatric, medications, short term infusions and fragile veins</td>
</tr>
</tbody>
</table>

Adapted from The Royal Marsden Hospital Manual of Clinical Nursing Procedures (2008).