University Hospitals Birmingham NHS
NHS Foundation Trust

Expanded Practice Protocol for Registered Nurses to Insert Peripherally Inserted Central Catheters (PICC) and Confirm Position of PICC

CONTROLLED DOCUMENT

CATEGORY:	**Procedural Document**
CLASSIFICATION:	**Clinical**
PURPOSE	**To support registered nurses to insert peripherally inserted central catheters (PICC lines) and to confirm position of the PICC prior to use.**
Controlled Document Number:	**248.6** **(Formerly CP 18)** **Associated PGD: 003/0414**
Version Number:	**Version 6**
Controlled Document Sponsor:	**Executive Chief Nurse**
Controlled Document Lead:	**Consultant Nurse Urgent Care Acute Pain (UCAP)**
Approved By:	**Executive Chief Nurse** **Executive Medical Director**
On:	**27th July 2014**
Review Date:	**27th June 2017**
Distribution: • **Essential Reading for:** • **Information for:**	**All registered nurses who currently undertake insertion and confirmation of position of peripherally inserted central catheters and all registered nurses who wish to expand their practice to include this skill.** **All registered clinical staff**

EVIDENCE FOR PRACTICE

A peripherally inserted central catheter (PICC) is an intravenous access device that is inserted through one of the veins of the upper arm. A PICC is indicated for those patients who have poor peripheral access and / or require intermediate to long term intravenous (IV) access, for administration of parental nutrition, vesicant IV medication, repeated blood sampling and where other central venous access devices are contra-indicated (Dougherty and Watson 2008).

NICE (2002) guidance recommended the use of ultrasound to locate and assist in central venous access device insertion. Moureau (2003) wrote that adding ultrasound guidance to a PICC insertion program increased the rate of successful insertions to more than 90% compared with about 80% by traditional PICC insertion. The advantages of using ultrasound include identification of the precise position of the target vein, detection of anatomical variants, identification of thrombosis within the vessel, and avoidance of arterial puncture. It therefore has the potential to reduce the incidence of complications related to initial venous puncture (Stokowski et al 2009).

Historically, following insertion a chest x-ray has been the standard practice for ensuring that the tip of a PICC line sits in the lower one third of the superior vena cava (SVC). However electrocardiographic (ECG) guided positioning has been used in Europe and the USA for many years with tip positioning safely confirmed in a large number of insertions (Pittiruti et al 2011). This practice is now becoming more widespread in the United Kingdom with an increasing amount of patients and Trusts benefiting from the use of ECG guided placements.

Registered nurse led PICC insertion services as identified within this expanded practice protocol will now use the Sherlock 3CG TCS which allows magnetic real-time tracking of the PICC tip during insertion and PICC tip position confirmation with ECG. This will reduce malposition rates, delays in receiving therapy as well as reduce the need for post-procedural chest x-ray for confirmation of PICC tip position. Ultimately this will improve the patient experience, patient outcome and reduce risk and costs.

PICC insertion by registered nurses has been undertaken within the Trust for several years. Registered nurses have been inserting them using ultrasound guidance, and then referring the patient for a chest x-ray which requires review by a medical practitioner. This is currently led by an established registered nurse led PICC insertion service for Oncology and Haematology patients on ward 621. This service continues to expand and is currently placing approximately 750 PICCs a year. In addition insertion of PICC has been undertaken within the interventional radiology department by radiology staff.

With the benefits of PICC insertion being recognised and increasing demand for, there are increasing pressures on the existing services. For this reason the expansion of a registered nurse led vascular access service will allow for

the insertion of PICCs by registered nurses for those patients not covered by the oncology and haematology service on 621. PICC insertion will continue to be undertaken in the interventional radiology department in accordance with separate expanded practice protocols. Therefore this expanded practice protocol only relates to those registered nurses working in the registered nurse led PICC insertion service on 621 and in the new nurse led vascular access service.

A review of the expanded practice protocol has been undertaken to ensure the practice covered by this document remains up to date. As part of this review, an audit was performed (Fernyhough et al 2013), which has confirmed that the expanded practice protocol has been adhered to. Due to the addition of a new nurse led vascular access service and the use of the Sherlock 3CG TCS in the insertion process, changes have been made to the expanded practice protocol to reflect this. This includes the addition to the title of the protocol to reflect that the registered nurse will now also be confirming the position of the PICC tip.

CONSENT

Formal written consent for the insertion of a PICC by a registered nurse must be obtained by the registered nurse who will be performing the insertion and this must be documented in the patient's records. For further information regarding consent and mental capacity please refer to the following documents:

- Department of Health Reference Guide to Consent for Examination or Treatment (2009).
- The Trust's Policy and Procedural document for consent to examination or treatment (current version).
- *Mental Capacity Act (2005).*

INDICATIONS

The registered nurse must only insert the PICC when;

- They are in receipt of either a hard copy or electronic request for a PICC to be inserted. This must have been completed by either a medical practitioner or a registered nurse, clearly stating the indicated use of the PICC line. NB: Registered nurse referrals must only be accepted from registered nurses working within oncology/haematology and within the Nutrition Team.
- They have obtained written informed consent prior to insertion of the PICC.

Following insertion the registered nurse who has inserted the PICC line must:

- Ensure a printout of the ECG is made available in the patient's medical notes.
- Confirm correct tip position of the PICC and record this in the patient's medical records. In addition they must add the relevant information to the CVAD insertion and ongoing care record.
- Ensure that the patient is reviewed 24 hours post PICC insertion.

CONTRAINDICATIONS

The registered nurse must not insert a PICC in the following circumstances:

- The patient has capacity and does not give consent for the insertion of a PICC line by a registered nurse.
- The patient is under 16 years of age.
- The patient has an anatomical distortion from surgery, injury, trauma or disease process.
- The patient has bilateral arm lymphoedema.
- The patient has a pacemaker.
- The patient has an implantable de-fibrillator device.
- The patient has an arterio-venous fistula or is on haemodialysis or peritoneal dialysis.
- The patient is scheduled to have an arterio-venous fistula formed.
- The patient is non-compliant with the care of the PICC line.
- The patient has a known allergy to Lidocaine (lignocaine) Hydrochloride 1%.
- The patient's platelets count is 50 or below.

LIMITATIONS TO PRACTICE

In the following circumstances or when the registered nurse is concerned about the patient's condition they must refer the patient to the appropriate medical practitioner for advice on any further action to be taken, and this must be recorded in the patient's records:

- The patient has a known coagulation disorder.
- The patient has received thrombolytic therapy within the last 48 hours.
- The patient has an inappropriate size vein when assessment is made with ultrasound.
- The registered nurse has unsuccessfully attempted to insert the PICC line and in their clinical judgment the patient needs to be reviewed by medical staff.

N.B. When the Sherlock 3CG TCS cannot be used to confirm the position of the PICC the registered nurse must refer the patient for a follow up chest x-ray and document clearly in the patient's records that the line cannot be used until confirmation of correct placement. A medical practitioner must review the chest x-ray and document confirmation of the correct placement of the PICC line in the patient's records before the PICC can be used.

If the patient has required a chest x-ray to confirm the position of the PICC line and it has been confirmed that the PICC is in an incorrect position, the registered nurse must immediately remove or reposition the line.

All renal patients must first be discussed with the renal physician if PICC insertion is being considered.

If the patient requires the PICC for the administration of parenteral nutrition

and a blood stream infection is suspected or confirmed then the registered nurse must first discuss the patient with the nutrition team before proceeding with the insertion.

CRITERIA FOR COMPETENCE

1. The registered nurse must have undertaken and successfully completed the Bard European PICC Preceptorship Programme. The programme includes:
    - One day Advanced PICC Placement Workshop including anatomy and physiology related to vascular access, device choice, complication management and ultrasound techniques.
    - PICC Tip Location and Tip Confirmation System: a half day training programme for Sherlock 3CG including theory and practical based training.
    - Online course and completion of an examination.

2. Evidence of satisfactory supervised practice must be provided by the registered nurse as witnessed by a practitioner who is already competent in the insertion of a PICC. The practitioner can be either a registered nurse already competent in the insertion of a PICC or a representative from Bard (Appendix 1).

3. The number of supervised practices required will reflect the individual registered nurse's learning needs.

4. Evidence of competence must be provided and a copy kept in the registered nurse's personal file and in the ward or department where the skill is practised (Appendix 2). Following each review and update of the protocol the registered nurse has a responsibility to ensure that their evidence of competence is against the current version of the protocol.

5. The registered nurse must provide evidence of completion of Trust's ILS training.

6. The registered nurse must provide evidence of competence in the administration of intravenous drugs in accordance with expanded practice protocol controlled document no: 232 (formerly CP 03 / current version).

7. The registered nurse must provide evidence of competence in peripheral venous cannulation in accordance with expanded practice protocol controlled document no: 229 (formerly CP 01 / current version).

8. The registered nurse must provide evidence of competence in performance of phlebotomy in accordance with expanded practice protocol controlled document no: 243 (formerly CP 10 / current version).

9. The registered nurse must provide evidence of competence in referral for x-ray examinations (as defined by IR(ME)R 2000, in accordance with expanded practice protocol controlled document no: 326 (formerly CP 105 / current version).

10. The registered nurse must provide evidence of competence in the administration of Lidocaine (lignocaine) Hydrochloride 1% in accordance with PGD No 003/0414.

11. The registered nurse must have a working knowledge of the Trust's Guidelines for the Care of Central Venous Access Devices (CVADs), controlled document number 224 current version.

12. Registered nurses new to the Trust, who have been performing the skill elsewhere, must read, understand and be signed off against this protocol. Evidence of appropriate education and competence must be provided and checked by the registered nurse's line manager before undertaking this expanded practice at the Trust. The decision whether the registered nurse needs to complete Trust training will be at the discretion of the registered nurse's line manager

13. In accordance with codes of professional practice, the registered nurse has a responsibility to recognise, and to work within, the limits of their competence. In addition, the registered nurse has a responsibility to practice within the boundaries of the current evidence based practice and in line with up to date Trust and national policies and procedural documents. Evidence of continuing professional development and maintenance of skill level will be required and confirmed at the registered nurse's annual appraisal by the registered nurse's line manager.

A list of registered nurses competent to perform this skill must be kept by the Consultant Nurse UCAP and in the ward or department where the skill is practised.

PROTOCOL AND SKILLS AUDIT

The registered nurse led vascular access service will lead the audit of the protocol with support from the Practice Development Team. The audit will be undertaken in accordance with the review date and will include:

- Adherence to the protocol
- Any untoward incidents or complaints
- Number of registered nurses competent to perform the skill
- Number of PICC line insertions undertaken
- Number of PICCs inserted without using the Sherlock 3CG TCS
- Patient experience feedback

In addition audit must be undertaken in accordance with the requirements as directed by the Novel Therapy Group as part of their authorisation agreement

All audits must be logged with the Risk and Compliance Unit.

CLINICAL INCIDENT REPORTING AND MANAGEMENT

Any untoward incidents and near misses must be dealt with by the appropriate management team. An incident form must be completed and in addition the Risk and Compliance Unit must be notified by telephone of any Serious Incidents Requiring Investigation (SIRI).

REFERENCES

Department of Health (2009) **Reference Guide to Consent for Examination or Treatment** 2nd edn. HMSO London

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Dougherty L and Watson J (2008). 'Vascular access devices' in Dougherty L and Lister S (editors) **The Royal Marsden Hospital Manual of Clinical Nursing Procedures** (7th edition), Oxford: Blackwell Publishing. Chapter 44.

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Pittiruti, Mauro et al. (2011) **"The electrocardiographic method for positioning the tip of central venous catheters"** Journal of Vascular Access 1004

Stokowski G., Steele D. and Wilson D. (2009) **The use of ultrasound to improve practice and reduce complication rates in peripherally inserted central catheter insertions**. The Art and Science of Infusion Nursing. 32 (3) 145-155.

University Hospitals Birmingham NHS Foundation Trust (current version) **Policy for consent to examination or treatment**, University Hospitals Birmingham NHS Foundation Trust
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[accessed 08.05.14]

University Hospitals Birmingham NHS Foundation Trust (current version) **Working with carers: common core principles**, University Hospitals Birmingham NHS Foundation Trust http://uhbhome/working-with-carers-common-core-principles.htm
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PROTOCOL SUBMISSION DETAILS

Protocol reviewed by:

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Protocol submitted to and approved by:

Executive Chief Nurse .....

Date: 28/07/2014

Executive Medical Director .....

Date: 28/7/14

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EVIDENCE OF SUPERVISED PRACTICE

To become a competent practitioner, it is the responsibility of each registered nurse to undertake supervised practice in order to perform insertion of a PICC and confirmation of positioning of a PICC in a safe and skilled manner.

Name of Registered Nurse: …….

DATE	DETAILS OF PROCEDURE	SATISFACTORY STANDARD MET	COMMENTS	PRINT NAME, SIGNATURE & DESIGNATION
		Yes / No		
		Yes / No		
		Yes / No		
		Yes / No		
		Yes / No		
		Yes / No		

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CRITERIA FOR COMPETENCE

END COMPETENCE: INSERTION OF PERIPHERALLY INSERTED CENTRAL CATHETERS (PICC) AND CONFIRMATION OF POSITION OF PICC BY REGISTERED NURSES

Date(s) of Education and supervised practice: …….

Name of Registered Nurse (print): …… Clinical Area / Department: ……

Name of Supervisor (print): …… Designation……..

Element of Competence To Be Achieved	Date Achieved	Registered Nurse Sign	Supervisor Sign
Discuss and identify • indications, • contraindications • limitations for insertion and confirmation of PICC tip position according to this expanded practice protocol.			
Provide evidence of completion of the Bard European PICC Preceptorship Programme.			
Provide evidence of competence in peripheral venous cannulation in accordance with expanded practice protocol controlled document no: CD 229 (formerly CP 01 / current version).			
Provide evidence of competence in administration of intravenous drugs and infusions in accordance with expanded practice protocol controlled document no: CD 232 (formerly CP 03 / current version).			
Provide evidence of competence in performance of phlebotomy in accordance with expanded practice protocol controlled document no: CD 243 (formerly CP 10 / current version).			

Element of Competence To Be Achieved	Date Achieved	Registered Nurse Sign	Supervisor Sign
Provide evidence of competence in referreral for X-ray examinations (as defined by IR(ME)R (2000)), in accordance with expanded practice protocol controlled document no: CD 326 (formerly CP 105 / current version).			
Provide evidence of competence in the administration of Lidocaine (lignocaine) Hydrochloride 1% in accordance with PGD No 003/0414.			
Provide evidence of completion of Trust's ILS training.			
Demonstrate knowledge of the Trust Guidelines for the Care of Central Venous Access Devices (CVADs) (current version)			
Discuss accountability in relation to the NMC Code: Standards of conduct, performance and ethics for nurses and midwives (2008).			
Demonstrate maintenance of the patient's privacy and dignity throughout the procedure.			
Demonstrate a working knowledge of the Trust's policy for consent to examination or treatment.			
Provide evidence of completion of Trust's consent training.			
Demonstrate a working knowledge of the Mental Capacity Act.			
Demonstrate accurate provision of information pre, during and post the procedure in a way that the patient understands.			
Demonstrate involvement of the patient and their families/carers, in decision making about their care and treatment.			
Demonstrate application of the Trust Principles for carers.			

Element of Competence To Be Achieved	Date Achieved	Registered Nurse Sign	Supervisor Sign
Demonstrate the ability to check the patient's infection status on PICS and practice safe infection control practices throughout the procedure as appropriate. To include: • Standard precautions • Aseptic non touch technique – protection of key parts • Scrub techniques – sterile field maintenance			
Demonstrate accurate record keeping.			
Discuss any health and safety issues in relation to this expanded practice			
Demonstrate an understanding of the incident reporting process.			

I declare that I have expanded my knowledge and skills and undertake to practice with accountability for my decisions and actions. I have read and understood the protocol for EXPANDED PRACTICE PROTOCOL FOR REGISTERED NURSES TO INSERT PERIPHERALLY INSERTED CENTRAL CATHETERS (PICC) AND CONFIRM POSITION OF PICC

Signature of Registered Nurse: ……Print name:……..

Date: ……

I declare that I have supervised this registered nurse and found her/him to be competent as judged by the above criteria.

Signature of Supervisor: …….. Print name:……..

Date: ……..

A copy of this record should be placed in the registered nurse's personal file, a copy must be stored in the clinical area by the line manager, and a copy can be retained by the individual for their Professional Portfolio.