

A Guiding Framework

for Education, Training and Competence
Validation in Venepuncture and Peripheral
Intravenous Cannulation
for Nurses and Midwives



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Office of the Nursing Services Director
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Dr Steevens' Hospital
Dublin 8
Ireland

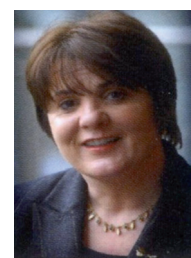
telephone: +353 1 635 2471
email: nursing.services@hse.ie

www.hse.ie



Foreword

Every day thousands of patients undergo Venepuncture and Peripheral Intravenous Cannulation in hospitals and healthcare settings throughout the Health Service Executive. The launch of this report *A Guiding Framework for Education, Training and Competence Validation in Venepuncture & Peripheral Intravenous Cannulation for Nurses & Midwives* (HSE, 2010) will introduce a national standardised evidence based approach for the education of nurses and midwives and facilitate the transferability of these skills across healthcare organisations within the HSE. This will ensure that patients, both adult and child, throughout the country can benefit from the same high standard of care and quality of service.



Dr. Siobhan O'Halloran,
Nursing Services Director

Recent reports such as the *HSE Transformation Programme 2007 – 2010* and the Report of the Commission on Patient Safety and Quality Assurance entitled *Building a Culture of Patient Safety* (DOHC, 2008) identified the importance of patients receiving safe and effective care from skilled professionals in appropriate environments. The *Acute Hospital Inpatient Bed Utilisation Review* (HSE, 2007) conducted in 37 acute hospitals in 2006 and 2007 indicated that only 12% of 3035 patients surveyed met the Appropriateness Evaluation Protocol (AEP) Admission Criterion "intravenous (IV) therapy" (fluids/ medications). The review also suggested that many of these patients could have received therapy outside the acute hospital setting.

The HSE is progressing the introduction of Integrated Service Areas (ISA's), whose role is to support improved co-operation and connectivity between acute and primary and community services. Nurses and midwives with clinical competence in venepuncture and peripheral intravenous cannulation, across the integrated service areas, can play an invaluable role in the clinical frontline setting, by promoting the quality and continuity of care that will enable patients to be treated effectively and efficiently in the healthcare setting most appropriate to their needs.

It is with great pleasure that I introduce the *HSE Guiding Framework for Education, Training and Competence Validation in Venepuncture & Peripheral Intravenous Cannulation for Nurses & Midwives (2010)*. The guiding framework aims to support nurses and midwives, healthcare managers and educators to implement venepuncture and peripheral intravenous cannulation in their organisations and to assist in the delivery of a robust mechanism that will ensure quality and safety for patients or clients in our care.

I wish to acknowledge the effort and commitment of all those involved in developing the guiding framework and supportive material. Particular thanks are extended to Jim Brown Acting Area Director of Nursing & Midwifery (HSE West) and Anne Gallen, Director of Nursing and Midwifery Planning and Development who project managed this initiative.

Siobhán O'Halloran

Dr. Siobhan O'Halloran

Health Service Executive

Nursing Services Director



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1 Introduction

Patient safety and quality is central to the delivery of healthcare. The report of the Commission on Patient Safety and Quality Assurance - Building a Culture of Patient Safety (DOHC, 2008) identified that healthcare delivery should be based on patients receiving safe and effective care from skilled professionals in appropriate environments. Improving the quality of patient care is central to the Health Service Executive (HSE). Every year thousands of patients, both adult and child, undergo venepuncture and peripheral intravenous cannulation in different healthcare settings. Venepuncture has been identified as the most common invasive procedure in hospitals (Castledine, 1996). Peripheral intravenous therapy accounts for up to 80% of hospital admissions (Amoore & Adamson, 2003) and the registered nurse/midwife is appropriately placed to undertake this skill.

This guiding framework supports the development and evaluation of education, training and competence validation in venepuncture and peripheral intravenous cannulation. It provides a consistent approach for teaching and competence assessment of venepuncture and peripheral intravenous cannulation skills across all services utilising a step by step skill pathway.

The framework was developed in partnership with the Office of the Nursing Services Director, Nursing and Midwifery Planning and Development Units, Centres of Nursing/Midwifery/ Children's Nurse Education, the Health Protection and Surveillance Centre, healthcare professionals and educators with expertise in venepuncture and peripheral intravenous cannulation. Following a review of best practice and evidenced based research, a National Advisory Group (appendix i) and an Education Sub-Committee (appendix ii) was established. This team, led by a Project Manager, collaborated extensively to progress this development.

The Office of the Nursing Services Director is indebted to the health service organisations whose education, practice development and clinical staff, involved in venepuncture and peripheral intravenous cannulation, gave of their time, expertise and educational material, which in turn facilitated the development of this framework.



2 Components of the Guiding Framework

The framework comprises of:

1. **A Skill Pathway utilising a blended learning approach consisting of:**
 - An eLearning Module with on-line Self Assessment
 - A written Theoretical Clinical Knowledge Assessment
 - Skills Demonstration and Practice Session
 - Clinical Supervised Practice
 - Competence Assessment
2. **Guidance for Educators, who facilitate the Venepuncture or Peripheral Intravenous Cannulation Programme**
3. **Supporting documentation that consists of the following:**
 - National Venepuncture Programme - Learner Handbook (HSE, 2010)
 - National Peripheral Intravenous Cannulation Programme - Learner Handbook (HSE, 2010)
 - National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Adults (for local adaptation) (HSE, 2010)
 - National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Children (for local adaptation) (HSE, 2010)
 - National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Peripheral Intravenous Cannulation in Adults (for local adaptation) (HSE, 2010)
 - National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Peripheral Intravenous Cannulation in Children (for local adaptation) (HSE, 2010)

3 Scope of Framework

The framework applies to:

- Nurses and midwives employed in both the adult and children's setting in the Health Service Executive who wish to undertake venepuncture and peripheral intravenous cannulation skills.
- Nurses and midwives registered with An Bord Altranais.
- Nurses and midwives on the candidate register of An Bord Altranais.
- Pre-registration undergraduate nurses and midwives during their Internship period.

4 Glossary of Terms

Aseptic Technique:

Aseptic technique is implemented during any invasive procedure that bypasses the body's natural defences e.g. the skin or when handling equipment such as peripheral intravenous cannulae. This technique is used to reduce the potential problem of introducing pathogenic micro organisms into the body when the integrity and /or effectiveness of the natural body defences have been reduced.

(Jamieson et al., 1988 and Dougherty and Lister, 2009)

Assessor:

An assessor is an identified nurse or midwife who has undertaken a similar educational and clinical programme and is a competent expert practitioner. It is recommended that nurses and midwives develop their competence within specific disciplines according to their area of practice.

Cannula:

A cannula is a short and flexible tube, containing a needle, or introducer, which pierces the peripheral vein, to provide access to the vascular circulation for the administration of intravenous fluids and medications.

Competence:

The ability of the registered nurse or midwife to practice safely and effectively fulfilling his or her professional responsibility within their scope of practice.

(An Bord Altranais, 2000)

Child:

The term child refers to neonate, infant, child and adolescent's under 18 years of age unless otherwise stated.

Family Centred Care:

A way of caring for children and their families within health services which ensures that care is planned around the whole family, not just the individual child/person, and in which all the family members are recognised as care recipients.

(Shields et al., 2006)

Nurse:

The word nurse means a person registered in the Live Register of Nurses as provided for in Section 27 of the Nurses Act 1985 and includes a midwife and nursing includes, midwifery - Code of Professional Conduct for each Nurse and Midwife.

(An Bord Altranais, 2000)



Order of Draw:	<p>The order of blood draw refers to the sequence in which blood collection bottles should be filled.</p> <p>(WHO, 2002).</p>
Parent/Legal Guardian:	<p>The term parent or legal guardian is used to describe the parent and or legal guardian of the child who is under the age of 16 years.</p> <p>(A Practical Guide to Immunisations (HSE, 2008)</p>
Peripheral Intravenous Cannulation:	<p>Peripheral intravenous cannulation is the introduction of a short, flexible hollow plastic tube or cannula containing a needle or introducer, into a peripheral vein to provide access to the vascular circulation, for the administration of fluids and medications.</p>
Safety Blood Collection Systems:	<p>Safety blood collection systems are single use blood collection systems that enhance safer venepuncture.</p>
Venepuncture:	<p>Venepuncture is the introduction of a needle into a vein to obtain a blood sample for haematological, biochemical or bacteriological analysis -also known as phlebotomy, venesection, drawing or taking blood.</p> <p>(Lavery & Ingram, 2005)</p>

5 Key Principles

The key principles underpinning the guiding framework are:

- Service Need
- Equity of Access
- Clinical Focus
- Quality and Accreditation
- Standardisation
- Collaboration
- Sustainability
- Flexibility

(Adapted from the Report of the Post-Registration Nursing and Midwifery Education Review- HSE, 2008)

6 Aim

The aim of this framework is to provide a standardised approach for the education, training and competence validation of nurses and midwives who undertake venepuncture and peripheral intravenous cannulation. It also enables the transferability and recognition of venepuncture and peripheral intravenous cannulation skills acquired by nurses and midwives. The framework supports safe, quality care for patients, who access healthcare across the HSE.

7 Purpose

The purpose of this framework is to provide:

- An outline of the **roles and responsibilities** associated with the implementation of venepuncture and peripheral intravenous cannulation for nurses and midwives.
- A **standardised approach** for education, training and competence validation for nurses and midwives who undertake the skills of venepuncture and peripheral intravenous cannulation, utilising:
 - A **blended learning approach** whereby the theoretical component can be accessed on-line through HSE eLearning www.hseland.ie and the remaining elements are delivered and assessed through the Centres of Nursing/Midwifery/Children's Nurse Education, practice development units or designated educational providers.
 - A National Standardised **Record of Competence Achievement**
- A **skill pathway** approach which outlines the steps required for the nurse or midwife to obtain competence in the skill of venepuncture and/or peripheral intravenous cannulation.



- **Guidance for educators** which includes the following:
 - An outline of the Health Services Executive's **core requirements** for the education, training and assessment and continuing competence of nurses and midwives undertaking venepuncture and peripheral intravenous cannulation within the public health services.
 - **Criteria and application process, programme duration and accessibility, assessment and evaluation, certification, ratification and learning resources**
 - The **aims and learning outcomes** for the venepuncture and peripheral intravenous cannulation programmes.
 - **A module outline and unit specific learning outcomes** for the venepuncture and peripheral intravenous cannulation programmes.
- An **implementation process** reflective of the core requirements to support local implementation, incorporating local policies and guidelines.

8 Roles and Responsibilities

8.1 Role and Responsibility of the Clinical Line Manager

It is the responsibility of the clinical line manager to ensure that nurses and midwives, who are undertaking venepuncture and peripheral intravenous cannulation fulfil certain criteria.

8.1.1 Criteria for Nurses and Midwives Commencing the Skills of Venepuncture and Peripheral Intravenous Cannulation

Nurses and midwives must:

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais.
- Be employed by the HSE
- Be approved by their clinical nurse or midwife manager as an appropriate person to expand their practice, to include venepuncture and/or peripheral intravenous cannulation
- Be a registered nurse or midwife (Two years post registration experience is required when working with children)
- Be employed in an area where venepuncture and/or peripheral intravenous cannulation is required to enhance service provision
- Successfully complete an education and training programme in the Management and Administration of Intravenous Medication (only if undertaking the peripheral intravenous cannulation programme)
- Successfully complete the educational preparation and competence assessment, that is compliant with or equivalent to that outlined in the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010)

8.1.2 Criteria for Nurses or Midwives who have Successfully Undertaken a Venepuncture and/or Peripheral Intravenous Cannulation Programme and practiced the Skill of Venepuncture and/or Peripheral Intravenous Cannulation in another Employment.

To preclude unnecessary replication for nurses or midwives who are newly employed by the HSE, the following steps are necessary prior to undertaking venepuncture and/or peripheral intravenous cannulation.

- The relevant Clinical Nurse or Midwife Manager should be satisfied that the content of the training programme is equivalent to that outlined in the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010). The nurse or midwife must:
 - Provide documentary evidence that they have completed a training programme, were deemed competent and have maintained their competence prior to their change of employment
 - Become familiar with this organisation's policy and procedures related to venepuncture and/or peripheral intravenous cannulation and professional guidelines
- Nurses and midwives, who are not competent using the venepuncture and/or peripheral intravenous cannulation equipment of their new employment must enter the Skill Pathway on step six (10.1)
- Nurses and midwives, whose education and training is not aligned to the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010) must undertake all ten steps of the Skill Pathway



9 Standardised Approach

The HSE has developed a national standardised evidence based education and training programme in venepuncture and peripheral intravenous cannulation for nurses and midwives, based on the domains of competence as laid down by An Bord Altranais (2005). Nurses and midwives undertaking venepuncture and peripheral intravenous cannulation can access appropriate education, training and competence assessment, enabling them to perform these expanded roles safely and successfully for patients in their care. In order to ensure a national standardised approach all existing education programmes must be aligned with this Guiding Framework.

A blended learning approach is utilised, whereby the theoretical component is accessed on-line through HSELand www.hseland.ie and the remaining elements are delivered and assessed through Centres of Nursing /Midwifery /Children's Nurse Education, practice development units or designated educational providers. The guiding framework supports the provision of documentary evidence of skills acquisition in the practice of venepuncture and peripheral intravenous cannulation. It provides for existing venepuncture and peripheral intravenous cannulation education and training programmes to meet the core requirements and therefore facilitates transferability of skills across health service organisations within the HSE.

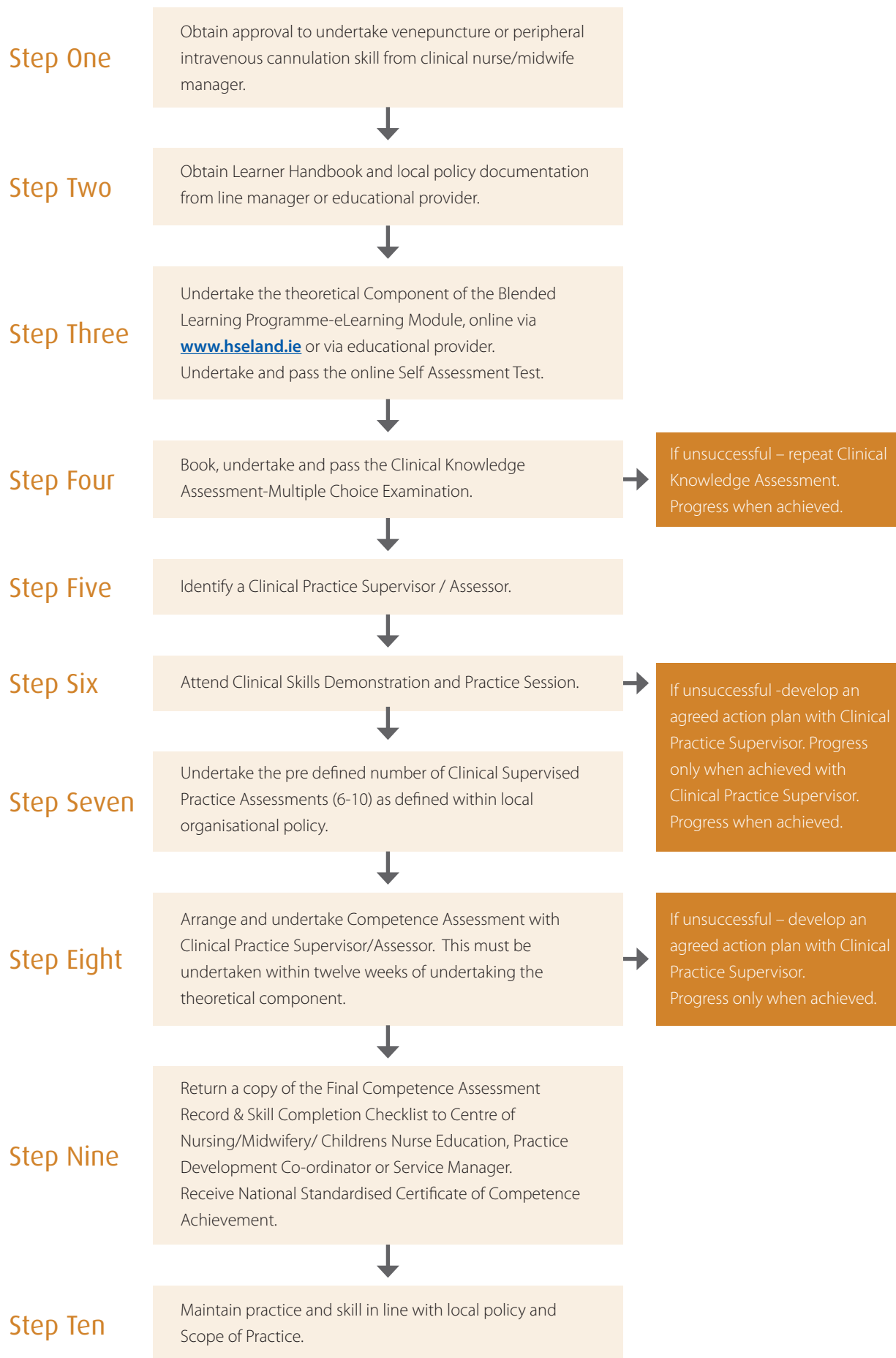
Use of a National Standardised Certificate of Competence Achievement (appendix iii) facilitates transferability and recognition of venepuncture and/or peripheral intravenous cannulation skills as nurses and midwives work across service areas in the HSE.

10 Skill Pathway for Venepuncture and Peripheral Intravenous Cannulation

If undertaking the Peripheral Intravenous Cannulation Programme, nurses and midwives must first successfully complete an **approved education programme on the Management and Administration of Intravenous Medication**. The following skill pathway outlines the steps involved in order for the nurse or midwife to obtain competence in the skill of venepuncture or peripheral intravenous cannulation. The skill pathway should be completed within a twelve week timeframe.

10.1 Skill Pathway

The following skill pathway outlines the ten steps involved in order for the nurse or midwife to obtain competence in the skill of venepuncture and/or peripheral intravenous cannulation. If undertaking the peripheral intravenous cannulation programme, nurses and midwives must first successfully complete an approved education programme on the Management and Administration of Intravenous Medication.



10.2 Ten Step Approach to the Skill Pathway

Step One Approval to Undertake Skill

If undertaking the peripheral intravenous cannulation programme, nurses and midwives must first successfully complete an approved education programme on the Management and Administration of Intravenous Medication. Discuss with your line manager and obtain approval to undertake the programme.

Step Two Learner Handbook and Policy Documents

Obtain Learner Handbook and local policy documents from your line manager or educational provider. Read and familiarise yourself with the documentation.

Step Three Theoretical Component of the Programme

Undertake the theoretical component of the Programme. This is provided as an online eLearning module. The module can be accessed through www.hseland.ie and provides an introduction to the theory and practice of venepuncture and/or peripheral intravenous cannulation with practical demonstrations on video. The module contains a self assessment section to ensure learning has taken place on the key aspects of the module. Evidence of a pass in the self assessment is required in order to proceed to the next step (print score sheet). The programme may also be delivered by your local Centre of Nursing/ Midwifery/ Children's Nurse Education, practice development unit or designated educational provider.

Step Four Clinical Knowledge Assessment

Upon completion of the theoretical component, proceed to undertake the clinical knowledge theoretical assessment by booking a place through the local Centre of Nursing/Midwifery/Children's Nurse Education, practice development unit or designated educational provider. This is a multiple choice examination, which takes approximately one hour.

Step Five Clinical Skills Demonstration and Practice Session

Undertake a Clinical Skills Demonstration and Practice Session to practice the skill of venepuncture and/or peripheral intravenous cannulation in an educational environment. This can be arranged by booking a place through the local Centre of Nursing/Midwifery/Children's Nurse Education, Practice Development Unit or designated educational provider.

Step Six Clinical Practice Supervisor/Assessor

In conjunction with your clinical nurse/midwife manager, identify a clinical practice supervisor/ assessor who will support you to undertake the required number of supervised clinical practice assessments, applicable to your area of clinical practice.

Step Seven Clinical Supervised Practice

In conjunction with your clinical practice supervisor/ assessor, a pre-defined number of clinical practice assessments (six to ten) must be undertaken. The clinical practice supervisor/assessor must assess each session and complete the Record of Supervised Practice Assessments (appendix iv).

Local organisational policy identifies the number of supervised clinical practice assessments required for venepuncture or peripheral intravenous cannulation. For example, a children's nurse may be required to undergo additional supervised clinical practice sessions in order to achieve competence for:

- Neonates
- 0-1 Year
- 1-5 Year
- 5 Years and above

Step Eight Competence Assessment

This is an assessment of clinical competence to undertake the skill of venepuncture or peripheral intravenous cannulation. This must be undertaken within twelve weeks of the theoretical component. When the nurse or midwife is deemed ready for the clinical competence assessment, they must:

- Agree a date for the clinical competence assessment with their clinical practice supervisor/ assessor
- Undertake the venepuncture or peripheral intravenous cannulation competence assessment. If successful, the Final Competence Assessment Form (appendix v) is completed by the clinical practice supervisor/ assessor. The signed Final Competence Assessment Form is returned to the line manager, who completes the Skills Completion Checklist (appendix vi). If unsuccessful, additional supervised practice assessments should be arranged and a date rescheduled for the final competence assessment.

Step Nine Record of Competence Achievement

The National Standardised Certificate of Competence Achievement is issued by the local Centre of Nursing/Midwifery/Children's Nurse Education, practice development unit or designated educational provider, on receipt of the Final Competence Assessment Form and Skill Completion Checklist.

Step Ten Maintenance of Competence

Upon completion of the skill pathway, each nurse or midwife should have the knowledge, skills and competence to practice the skill of venepuncture and/or peripheral intravenous cannulation across healthcare organisations within the HSE.

In order to maintain competence, it is recommended that up to ten venepuncture or peripheral intravenous cannulation procedures per month is required (or as predefined in local organisational policy). It is also important to keep up to date with changes in best practice, local policy and to keep abreast of equipment utilised for the procedure.



11 Guidance for Educators

11.1 Core Requirements

All HSE venepuncture and peripheral intravenous cannulation education and training programmes shall incorporate the following core requirements:

- Approval by An Bord Altranais (Category One)
- Module Content to include the following units of learning:

Unit 1:	Introduction
Unit 2:	Venous Site Selection
Unit 3:	Preparation for the Procedure
Unit 4:	Procedure
Unit 5:	Aftercare
- Explicit Aims and Learning Outcomes for each unit of learning
- Underpinned by the Domains of Competence (An Bord Altranais, 2005)
- Explicit Learner Competence Assessment Process
- Monitoring mechanism for ensuring ongoing competence
- Quality assurance, auditing and review processes (to ensure the ongoing fitness for purpose of education and training programmes)
- Agreed shared mechanisms for recording and reporting attendance and competence attainment of individuals at venepuncture and peripheral intravenous cannulation education and training nationally and locally

11.2 Programme Criteria and Application Process

Nurses and midwives who wish to undertake the education programme must have approval from their line manager and apply to their local educational provider. They must:

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais
- Be employed by the HSE
- Have successfully completed the Management and Administration of Intravenous Medications educational programme, if proceeding to undertake the skill of peripheral intravenous cannulation
- Be approved by the Clinical Nurse or Midwife Manager as an appropriate person to expand their role to include venepuncture and/ or peripheral intravenous cannulation
- Be employed in an area where venepuncture and/or peripheral intravenous cannulation is required to enhance service provision
- Accept personal responsibility and accountability for undertaking venepuncture and/or peripheral intravenous cannulation

11.3 Programme Duration

The theoretical and self assessment component of the programme is provided in an eLearning module and is completed at the learner's own time and pace. It is recommended that the theoretical component is sixty to ninety minutes duration, with the self assessment taking twenty minutes and is accessible for the learner through www.hseland.ie. The clinical knowledge assessment is a multiple choice examination of one hour duration. The supervised clinical demonstration and practice session is recommended as a four hour session. Assessment of Competence must be undertaken in the clinical area and must be completed within a twelve week time frame from commencement of the eLearning theoretical component.

11.4 Programme Accessibility

The programme will be facilitated through the Centres of Nursing/Midwifery/Children's Nurse Education, practice development units or designated educational providers. The eLearning theoretical module is accessible for learners through www.hseland.ie. Where nurses and midwives cannot access the on-line theoretical component of venepuncture and peripheral intravenous cannulation education, they may attend their local Centre of Nursing/Midwifery/Children's Nurse Education, practice development units or designated educational provider within their service provided that:

- It is deemed appropriate by their line manager
- The programme incorporates the core requirements for venepuncture and peripheral intravenous cannulation as outlined in this framework



11.5 Programme Assessment

There are four aspects where assessment is undertaken within the venepuncture and/or peripheral intravenous cannulation programme which are as follows:

- I. Self Assessment –an online component of the eLearning Module. The assessment is undertaken on completion of the theoretical instruction and provides the nurse or midwife with an indication of their knowledge base prior to proceeding to the Clinical Knowledge Assessment
- II. The Clinical Knowledge Assessment - an assessment of the clinical knowledge base of the nurse or midwife. It is delivered in a multiple choice exam format (one hour) by the educational provider, prior to proceeding to the Clinical Skills demonstration and practice session
- III. Clinical Supervised Practice – a pre defined number of clinical supervised practice assessments (six to ten) must be undertaken prior to proceeding to the final competence assessment. The Record of Supervised Practice Assessment (appendix iv) must be signed on each assessment by the clinical practice supervisor or assessor. A childrens nurse may be required to undergo additional supervised practice in order to achieve competence for neonates, 0 to 1 year olds, 1 to 5 year olds and 5 years old and above
- IV. Final Competence Assessment - an assessment of clinical competence that deems the nurse or midwife proficient in the skill of venepuncture and/or peripheral intravenous cannulation. The supervised practice assessments and final competence assessment must be completed within twelve weeks of undertaking the theoretical instruction. The nurse or midwife will receive a National Standardised Certificate of Competence Achievement (appendix iii) on completion of the final competence assessment. In the event of the nurse or midwife being unsuccessful in the final competence assessment, a further period of twelve weeks will be granted in order to achieve competence.

11.6 Programme Evaluation

Each programme delivered is evaluated by the educational provider. The programme is reviewed based on the findings of the evaluations from both the learners and the facilitators:

- Learner Evaluation - eLearning (appendix vii)
- Learner Evaluation of Blended Learning Programme (appendix viii)
- Facilitator Evaluation (appendix ix)

11.7 Programme Certification

Certification of competence achievement is issued by the educational provider on receipt of the Final Competence Assessment Form (appendix v) and Skill Completion Checklist (appendix vi). The National Standardised Certificate of Competence Achievement (appendix iii) enables transferability and recognition of venepuncture and/or peripheral intravenous cannulation skills across the health service.

11.8 Programme Ratification

The Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010) has been ratified by the Office of the Nursing Services Director. The educational programme is currently in receipt of Category One An Bord Altranais Approval. Local policy, procedures and guidelines are ratified through local governance structures. The procedural guideline should be reviewed annually to ensure it is consistent with current best practice.

11.9 Learning Resources

Nurses and midwives will have access to library resources, information technology and teaching accommodation to support their learning whilst undertaking the education programme.



12 Blended Learning Programme – Venepuncture

12.1 Aim

The overarching aim of the venepuncture programme is to provide the essential evidence based knowledge, skills and competence to enable nurses and midwives to safely and successfully perform venepuncture for patients in their care.

12.2 Learning Outcomes

On completion of the Blended Learning programme, the learner will be able to:

- Identify anatomical structures and explain the appropriate choice of venous sites applicable to venepuncture
- Describe the role of the nurse and midwife in undertaking the skill of venepuncture
- Outline the indications for venepuncture
- Communicate with patients and their families to facilitate safe and effective venepuncture
- Demonstrate knowledge of:
 - preparing for the procedure and obtaining informed consent
 - the effective technique for the procedure
 - order of blood draw and correct use of equipment
 - documentation and correct labelling process
 - the management of complications associated with venepuncture
- Successfully complete the clinical knowledge assessment
- Successfully complete the supervised practice assessments and the final competence assessment within a twelve week time frame from commencement of the theoretical component
- Practice independently and maintain competence in accordance with scope of practice and local policy

12.3 Venepuncture Module Outline & Unit Specific Learning Outcomes

Components		Learning Outcomes
Unit 1	Introduction <ul style="list-style-type: none"> Welcome Elements of the programme Prerequisites to the blended learning programme eLearning module contents Using the eLearning module Family centred care and evidence based practice Module Learning Outcomes 	<ul style="list-style-type: none"> Identify anatomical structures and explain the appropriate choice of venous sites applicable to venepuncture Describe the role of the nurse and midwife in undertaking the skill of venepuncture Outline the indications for venepuncture Communicate with patients to facilitate safe and effective venepuncture Demonstrate knowledge of: <ul style="list-style-type: none"> Preparation for procedure and how to obtain informed consent The effective technique for the procedure Blood draw sequence and the correct use of equipment Documentation and correct labeling Management of complications Complete the online self assessment
Unit 2	Venous Site Selection <ul style="list-style-type: none"> Learning Outcomes Structure of Veins Anatomy of Veins, Nerves and Arteries Selection of a Venous Site Clinical Assessment to Choose a Vein 	<ul style="list-style-type: none"> Identify the relevant veins, nerves and arteries that relate to venepuncture Undertake a clinical assessment to choose the appropriate vein
Unit 3	Preparation for Procedure <ul style="list-style-type: none"> Learning Outcomes Hand Hygiene Personal Protective Equipment Management and Disposal of Sharps Blood Borne Viruses Choosing Equipment Order of Blood Draw 	<ul style="list-style-type: none"> Identify the appropriate hand hygiene and personal protective equipment required for the procedure Explain the safe management and disposal of sharps, and the risks associated with the transmission of blood borne viruses during the procedure Determine the blood collection sets and bottles required for the procedure
Unit 4	Procedure <ul style="list-style-type: none"> Learning Outcomes Indications for Procedure Communication Consent Topical Anaesthetic Agents Tourniquet Use and Application Standard Equipment for Procedure Venepuncture procedure 	<ul style="list-style-type: none"> Identify the indications for venepuncture and explain the five-step process to obtain informed consent Recognise the importance of communicating effectively with the patient (adult or child) and family Identify the pharmacological and non pharmacological methods of pain relief Follow the requirement for topical anaesthetic agents and be familiar with their indications and application Identify when other health care professionals should be involved in assisting with the procedure Discuss the application of the tourniquet Identify the standard equipment required for the venepuncture procedure and how to safely carry it out
Unit 5	Aftercare <ul style="list-style-type: none"> Potential Problems and Complications Documentation 	<ul style="list-style-type: none"> Identify potential problems and complications associated with venepuncture and outline the appropriate actions to prevent and treat these complications Critically discuss the importance of documentation in relation to the venepuncture procedure



13 Blended Learning Programme - Peripheral Intravenous Cannulation

13.1 Aim

The overarching aim of the peripheral intravenous cannulation programme is to provide the essential evidence based knowledge, skills and competence to enable nurses and midwives to safely and successfully perform peripheral intravenous cannulation for patients in their care.

13.2 Learning Outcomes

On completion of the blended learning programme, the learner will be able to:

- Identify anatomical structures and explain the appropriate choice of sites applicable to peripheral intravenous cannulation
- Describe the role of the nurse and midwife in undertaking the skill of peripheral intravenous cannulation
- Outline the indications for peripheral intravenous cannulation
- Communicate with patients and their families to facilitate safe and effective peripheral intravenous cannulation
- Demonstrate knowledge of:
 - procedure preparation and how to obtain informed consent
 - the effective technique for the procedure
 - the documentation and management of complications
- Successfully complete the clinical knowledge assessment
- Successfully complete the supervised practice assessments and the final competence assessment within a twelve week time frame from commencement of the theoretical component
- Practice independently and maintain competence in accordance with scope of practice and local policy

13.3 Module Outline & Unit Specific Learning Outcomes

Components		Learning Outcomes
Unit 1	Introduction <ul style="list-style-type: none"> Welcome Prerequisites for the blended learning programme Elements of the programme eLearning module contents Family centred care and evidence based practice Module Learning Outcomes 	<ul style="list-style-type: none"> Identify anatomical structures and explain the appropriate choice of sites applicable to peripheral intravenous cannulation Describe the role of the nurse/midwife in undertaking the skill of peripheral intravenous cannulation Outline the indications for peripheral intravenous cannulation Communicate with patients to facilitate safe and effective peripheral intravenous cannulation Demonstrate knowledge of: <ul style="list-style-type: none"> Preparation for procedure and how to obtain informed consent The effective technique for the procedure Blood draw sequence and the correct use of equipment Documentation and correct labeling Management of complications Complete the online self assessment
Unit 2	Venous Site Selection <ul style="list-style-type: none"> Learning Outcomes Structure of Veins Anatomy of Veins, Nerves and Arteries Selection of a Venous Site Clinical Assessment to Choose a Vein 	<ul style="list-style-type: none"> Identify the relevant veins, nerves and arteries that relate to peripheral intravenous cannulation Undertake a clinical assessment to choose the appropriate vein
Unit 3	Preparation for Procedure <ul style="list-style-type: none"> Learning Outcomes Hand Hygiene Personal Protective Equipment Management and Disposal of Sharps Blood Borne Viruses Choosing Equipment 	<ul style="list-style-type: none"> Identify the appropriate hand hygiene and personal protective equipment required for the procedure Explain the safe management and disposal of sharps and the risks associated with the transmission of blood borne viruses during the procedure Determine the type of peripheral intravenous cannula required
Unit 4	Procedure <ul style="list-style-type: none"> Learning Outcomes Indications for Procedure Communication Consent Topical Anaesthetic Agents Tourniquet Use and Application Standard Equipment for Procedure The Peripheral Intravenous Cannulation Procedure 	<ul style="list-style-type: none"> Outline the indications for peripheral intravenous cannulation and explain the five-step process to obtain informed consent Describe the importance of communicating effectively with the patient (adult or child) and family Describe the pharmacological and non pharmacological methods of pain relief Explain the requirement for topical anaesthetic agents and be familiar with their indications and application Identify when other health care professionals should be involved in assisting with the procedure Discuss the application of the tourniquet Describe the standard equipment required and how to safely carry out the peripheral intravenous cannulation procedure
Unit 5	Aftercare <ul style="list-style-type: none"> Maintenance of a Peripheral Intravenous Cannula Complications Removal of a Peripheral Intravenous Cannula Documentation 	<ul style="list-style-type: none"> Outline the monitoring and maintenance of the peripheral intravenous cannula taking account of the Peripheral Vascular Catheter Care Bundle Identify potential complications associated with peripheral intravenous cannulation and outline the appropriate actions to prevent and treat these complications Explain the indications and procedure for removal of a peripheral intravenous cannula Critically discuss the importance of documentation in relation to the peripheral intravenous cannulation procedure



14 Implementation Process

The National Advisory Group (appendix i) and the Educational Sub Committee (appendix ii), under the auspices of the Office of the Nursing Services Director, facilitated the development and implementation of the Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010).

Centres of Nursing/Midwifery/ Children's Nurse Education have responsibility for the co-ordination and implementation of the national education and training programme for venepuncture and peripheral intravenous cannulation.

Directors of Nursing and Midwifery are responsible for ensuring that sufficient clinical nursing and midwifery staff undertake education and training programmes appropriate to their service requirements in accordance with this guiding framework.

Each nurse and midwife undertaking education and training in venepuncture and peripheral intravenous cannulation is accountable for their practice and decisions made to support practice. They must be prepared to make explicit the rationale for those decisions and justify them in the context of legislation, case law, professional standards and guidelines, evidence based practice, professional and ethical conduct.

The documentation to support the implementation process is as follows:

- Appendix x National Venepuncture Programme - Learner Handbook (HSE, 2010)
- Appendix xi National Peripheral Intravenous Cannulation Programme - Learner Handbook (HSE, 2010)
- Appendix xii National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Adults (for local adaptation) (HSE, 2010)
- Appendix xiii National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Children (for local adaptation) (HSE, 2010)
- Appendix xiv National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Peripheral Intravenous Cannulation in Adults (for local adaptation) (HSE, 2010)
- Appendix xv National Clinical Policy and Procedural Guideline for Nurses and Midwives on Peripheral Intravenous Cannulation in Children (for local adaptation) (HSE, 2010)

References

- Amoores, J., and Adamson, L (2003). Infusion Devices: Characteristics, Limitations and Risk Management. Nursing Standard, 17(28), pp45-52, 54-55.
- An Bord Altranais (2000) Scope of Nursing and Midwifery Practice Framework. An Bord Altranais: Dublin.
- An Bord Altranais (2000) The Code of Professional Conduct for each Nurse and Midwife. An Bord Altranais: Dublin.
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin.
http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. Dublin: An Bord Altranais.
http://www.nursingboard.ie/en/publications_current.aspx?page=1
- Castledine, G. (1996). Nurse's Role in Peripheral Venous Cannulation. British Journal of Nursing 5(20), pp1274.
- DOHC (2008) The Report of the Commission on Patient Safety and Quality Assurance - Building a Culture of Patient Safety Stationary Office: Dublin.
- Dougherty, L. (2008) Peripheral Cannulation. Nursing Standard. 22 (52), 49-56.
- Dougherty, L. & Lister, S. (2009) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 7th Ed. Wiley Blackwell Pub:Chichester
- HSE (2007) Acute Hospital Bed Review: A Review of Acute Hospital Bed Use in Hospitals in the Republic of Ireland with an Emergency Department HSE: Dublin
- Health Service Executive (2008) Report of the Post Registration Nursing and Midwifery Education Review. HSE: Dublin
- Health Service Executive (2008) A Practical Guide to Immunisations. HSE: Dublin
- Health Service Executive (2010) A Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives. HSE: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Peripheral Intravenous Cannulation in Adults HSE: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Peripheral Intravenous Cannulation in Children HSE: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Adults HSE: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Children HSE: Dublin
- Health Service Executive (2010) National Peripheral Intravenous Cannulation Programme Learner Handbook HSE: Dublin
- Health Service Executive (2010) National Venepuncture Programme Learner Handbook HSE: Dublin
- Jamieson, E. et al., (1988) Guideline for Clinical Nursing Practice. Churchill Livingstone: London.
- Lavery, I., and Ingram, P. (2005) Venepuncture: Best Practice. Nursing Standard. 19 (49) pp 55-65
- Shields, L., Pratt, J. and Hunter, J. (2006) Family-Centred Care: A Review of Qualitative Studies. Journal of Clinical Nursing, 15: 1317 – 1323
- WHO (2002) World Health Organisation- Collaborating Centre for Patient Safety Solutions
<http://www.ccforspatientsafety.org/>



Appendices

Appendix i Membership of the National Advisory Group

Name	Representation
Anne Gallen	Project Manager, HSE West
Jim Brown	Chairperson, HSE West
Mary F. McCarthy	NMPD Dublin North East
Mary Wynne	NMPD Dublin Mid Leinster
Fiona McMahon	Office of Nursing Services Director
Lila Kelly	National Hospital's Office
Brid McGoldrick	Primary, Community and Continuing Care
Mary Walshe	Dublin Academic Teaching Hospitals
Mary McArdle	Intellectual Disability Services
Helen Duffy	Centre of Nursing and Midwifery Education
Colum Bracken	Mental Health Services
Marie Kehoe	HSE Office of Quality and Risk
Mary Byrne	Public Health Nursing
Catherine Coyne	St Patrick's Hospital, Cashel
* Deirdre Mulligan	NMPD, Dublin North East
**Margaret Kinsella	CNME, Dublin North East
**Margaret Nadin	NMPD, Dublin North East

* Replaced Mary F. McCarthy

** Replaced Deirdre Mulligan

Appendix ii

Membership of the Educational Sub Committee

Name	Representation
Anne Gallen	Project Manager, HSE West
Mary Wynne	NMPD Dublin Mid Leinster
Fiona McMahon	Office of Nursing Services Director
Helen Duffy	Centre of Nursing and Midwifery Education
Catherine Coyne	St Patrick's Hospital, Cashel
Margaret Nadin	NMPD, Dublin North East
Paula Kavanagh	NMPD, HSE West
Carmel O'Donnell	Centre of Children's Nurse Education, Our Lady's Children's Hospital, Crumlin.
Ann Louise Mulhall	Centre of Midwifery Education, Coombe Women's Hospital, Dublin
Margaret Moran 1	CNME, St. Vincents University Hospital, Dublin
Catherine Cannon	CNME, Donegal
Rita Meally	CNME, Galway
Mary T. Ring	CNME, Kerry
Mary C. McNamara	CNME, Limerick
Elaine Hanley	CNE, Mater Hospital
Eileen Kelly	CNME, Cork
Sheila Donlan	Health Protection and Surveillance Centre
Dr. Mary Hodson	CNME, Sligo and Leitrim
Maureen Scanlon	Sligo General Hospital
Mary Ruth Hogan	CNME, Mayo
Phillippa Ryan Witherow	AMNCH
Mary Cotter	AMNCH
Miriam Roche	St. James' Hospital
Mary Bell	St. James' Hospital
Margaret Moran 2	Infection Prevention Society, Letterkenny General Hospital, Donegal
Aine McHugh	University College Dublin



Appendix iii National Standardised Certificate of Competence Achievement – Samples



Office of the
Nursing Services Director



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive


Centre of Nursing & Midwifery Education

Record of Competence Achievement


**Has successfully completed the
National Venepuncture Programme**

Facilitators:-

Date:



Office of the
Nursing Services Director



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Centre of Children's Nurse Education


Record of Competence Achievement

Neonates	<input type="checkbox"/>
0 to 1 Year Old	<input type="checkbox"/>
1 to 5 Year Old	<input type="checkbox"/>
5 years and above	<input type="checkbox"/>


**Has successfully completed the
National Peripheral Intravenous Cannulation Programme**

Facilitators:-

Date:



Office of the
Nursing Services Director



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Centre of Children's Nurse Education

Record of Competence Achievement

Neonates	<input type="checkbox"/>
0 to 1 Year Old	<input type="checkbox"/>
1 to 5 Year Old	<input type="checkbox"/>
5 years and above	<input type="checkbox"/>

**Has successfully completed the
National Venepuncture Programme**

Facilitators:-

Date:

Appendix iv (a) Venepuncture – Record of Supervised Practice Assessments

Venepuncture - Record of Supervised Practice Assessments

The purpose of this document is to provide evidence of supervised practice and demonstrate competence progression under supervision.

Name & (Initials)											
Job Title											
Organisation											
Department											
Clinical Skill	Venepuncture	Date Started:				Date Completed:					
Clinical Assessor Name & (Initials)	1.					2.					
Clinical Assessor Name & (Initials)	3.					4.					
Clinical Assessor Name & (Initials)	5.					6.					
The nurse or midwife must be able to discuss the rationale for each of the actions and demonstrate competence in the practical application of these skills as applicable											
Skill Required		10 SELF ASSESSMENTS									
		Achieved = √					Not Achieved =0				
		1	2	3	4	5	6	7	8	9	10
A	Correct identification of patient										
B	Appropriate patient preparation and communication										
C	Chooses and handles equipment confidently and correctly										
D	Considers personal safety and that of others										
E	Correct identification of suitable vein										
F	Appropriate venous dilation methods										
G	Provision of local anaesthesia as required (as per health care organisation policy)										
H	Needle inserted and sample obtained										
I	Correct order of draw for multiple samples										
J	Appropriate troubleshooting techniques										
K	Aseptic technique followed throughout										
L	Needle removed safely and care of site given										
M	Disposal of sharps safely										
N	Completes documentation, labelling, and sample dispatch (as per health care organisation policy)										
Initial of Clinical Assessor:											
Initial of Nurse/Midwife											
Date:											

The number of these supervisions will vary between individuals so please copy this form if you require more supervised assessment



Appendix iv (b) Peripheral Intravenous Cannulation – Record of Supervised Practice Assessments

Peripheral Intravenous Cannulation - Record of Supervised Practice Assessments

The purpose of this document is to provide evidence of supervised practice and demonstrate competence progression under supervision.

Name & (Initials)											
Job Title											
Organisation											
Department											
Clinical Skill	Peripheral Intravenous Cannulation	Date Started:				Date Completed:					
Clinical Assessor Name & (Initials)	1.					2.					
Clinical Assessor Name & (Initials)	3.					4.					
Clinical Assessor Name & (Initials)	5.					6.					
The nurse/midwife must be able to discuss the rationale for each of the actions and demonstrate competence in the practical application of these skills as applicable											
Skill Required		10 SELF ASSESSMENTS									
		Achieved = √					Not Achieved =0				
		1	2	3	4	5	6	7	8	9	10
A	Correct identification of patient										
B	Appropriate patient preparation and communication										
C	Chooses and handles equipment confidently and correctly										
D	Considers personal safety and that of others										
E	Correct identification of suitable vein										
F	Appropriate venous dilation methods										
G	Provision of local anaesthesia as required (as per health care organisation policy)										
H	Cannula insertion										
I	Secure and anchor cannula safely and effectively										
J	Appropriate troubleshooting techniques										
K	Appropriate technique followed throughout										
L	Management of equipment										
M	Disposal of sharps safely										
N	Completes documentation (as per health care organisation policy)										
Initial of Clinical Assessor:											
Initial of Nurse/Midwife											
Date:											

The number of these supervisions will vary between individuals so please copy this form if you require more supervised assessment

Appendix v (a) Venepuncture – Final Competence Assessment

Venepuncture – Final Competence Assessment

Final Assessment

Essential skills, demonstrating competence for independent practice.

Name			
Job Title			
Organisation			
Department			
Clinical Skill	Venepuncture		
Clinical Assessor			

The nurse or midwife demonstrated:		Pass	Refer
1	Appropriate communication with the patient throughout		
2	Safe technique throughout the whole procedure		
3	Familiarity with equipment		
4	Aseptic technique throughout		
5	Correct positioning of patient and preparation of environment		
6	Chooses appropriate vein site and equipment for venepuncture		
7	Provides local anaesthesia (as per health care organisation policy)		
8	Completes venepuncture procedure correctly and safely (as per health care organisation policy)		
9	Disposes of sharps and equipment correctly and safely		
10	Completes documentation in line with local health care organisation policy.		

Outcome (tick ✓)		Pass <input type="checkbox"/>	Refer <input type="checkbox"/>
------------------	--	-------------------------------	--------------------------------

OUTCOME AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:
Note of action if referred for further assessment:		

ACTION PLAN AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:



Appendix v (b) Peripheral Intravenous Cannulation – Final Competence Assessment

Peripheral Intravenous Cannulation – Final Competence Assessment

Final Assessment

Essential skills, demonstrating competence for independent practice.

Name			
Job Title			
Organisation			
Department			
Clinical Skill	Peripheral Intravenous Cannulation		
Clinical Assessor			
The nurse or midwife demonstrated:		Pass	Refer
1	Appropriate communication with the patient throughout		
2	Safe technique throughout the whole procedure		
3	Familiarity with equipment		
4	Aseptic technique throughout		
5	Correct positioning of patient and preparation of environment		
6	Chooses appropriate vein site and equipment for venepuncture		
7	Provides local anaesthesia (as per health care organisation policy)		
8	Completes venepuncture procedure correctly and safely (as per health care organisation policy)		
9	Disposes of sharps and equipment correctly and safely		
10	Completes documentation in line with local health care organisation policy.		
Outcome (tick ✓)		Pass <input type="checkbox"/>	Refer <input type="checkbox"/>

OUTCOME AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:
Note of action if referred for further assessment:		
ACTION PLAN AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:

Appendix vi (a) Venepuncture Skill Completion Checklist

Venepuncture Skill – Completion Checklist

Name			
Job Title			
Organisation			
Department/Ward/Unit			
Clinical Skill	Venepuncture		
Clinical Assessor			
Date Programme Commenced (must be completed within 3 months)			
Date Programme Completed			
The nurse /midwife will be able to discuss the rationale for each of the following actions and demonstrate competence in the practical application of venepuncture skills			
	Actions and skills required	Achieved	Date
1	Preliminary discussion with line manager and be approved to undertake the venepuncture skill pathway		
2	Read "Name of Organisation- Venepuncture Policy"		
3	Read the "Code of Professional Conduct" and the "Scope of Nursing and Midwifery Practice Framework" (An Bord Altranais, 2000)		
4	Completed the HSE eLearning component of the blended learning education programme or Attended approved theoretical programme provided by the <i>Name of Organisation</i>		
5	Successfully completed the HSE Clinical Knowledge Assessment or its equivalent		
6	Attended a skills demonstration and practice session and has become familiar with and practiced with equipment used in <i>Name of Organisation</i>		
7	Has been deemed suitable to proceed to supervised practice by educator		
8	Completed and recorded 6-10 supervised practice assessments		
9	Successfully completed the Final Competence Assessment and has been deemed competent by the Clinical Assessor for independent practice in <i>Name of Organisation</i>		
Competence agreed for Venepuncture I agree to maintain my clinical competence in venepuncture in line with the Scope of Nursing and Midwifery Practice Framework (An Bord Altranais 2000) (recommend performing x 10 venepuncture procedures per month)			
Date	Nurse/Midwife	Clinical Assessor:	
	Sign:	Sign:	
	Print:	Print:	

Clinical Nurse/Midwife Manager:

I am satisfied that the above named person has attended the necessary education & training, and has completed the related competence programme.

Sign Print Date

*Send Copy of completed checklist to Centre of Nursing/Midwifery/Children's Nurse Education (or other education provider) to receive your Record of Competence Achievement and keep a copy for your own records.



Office of the
Nursing Services Director

Appendix vi (b) Peripheral Intravenous Cannulation Skill Completion Checklist

Peripheral Intravenous Cannulation Skill Completion Checklist

Name			
Job Title			
Organisation			
Department/Ward/Unit			
Clinical Skill	Peripheral Intravenous Cannulation		
Clinical Assessor			
Date Programme Commenced (must be completed within 3 months)			
Date Programme Completed			
The nurse or midwife will be able to discuss the rationale for each of the following actions and demonstrate competence in the practical application of peripheral intravenous cannulation skills, in line with the Scope of Nursing and Midwifery Practice Framework (An Bord Altranais 2000)			
	Actions and skills required	Achieved	Date
1	Preliminary discussion with line manager and be approved to undertake the peripheral intravenous cannulation skill pathway		
2	Have undertaken an approved Intravenous Fluids/Drug Administration & Management Programme.		
3	Read "Name of Organisation- Peripheral Intravenous Cannulation Policy"		
4	Read the "Code of Professional Conduct" and the "Scope of Nursing and Midwifery Practice Framework" (An Bord Altranais 2000)		
5	Completed the HSE eLearning Module of the blended learning education programme or attended approved theoretical programme provided by the Name of Organisation		
6	Successfully completed the HSE Clinical Knowledge Theoretical Assessment or its equivalent		
7	Attended a skills demonstration and practice session and has become familiar with and practiced with equipment used in Name of Organisation		
8	Has been deemed suitable to proceed to supervised practice by educator		
9	Completed and recorded 6-10 supervised practice assessments		
10	Successfully completed the Final Competence Assessment and has been deemed competent by the Clinical Assessor for independent practice in Name of Organisation		
Competence agreed for Peripheral Intravenous Cannulation I agree to maintain my clinical competence in peripheral intravenous cannulation in line with the Scope of Nursing and Midwifery Practice Framework (An Bord Altranais 2000) (recommend performing 10 cannulation procedures per month)			
Date	Nurse/Midwife	Clinical Assessor:	
	Sign:	Sign:	
	Print:	Print:	

Clinical Nurse/Midwife Manager:

I am satisfied that the above named person has attended the necessary education & training, and has completed the related competence programme.

Sign Print Date

*Send Copy of completed checklist to Centre of Nursing/Midwifery/Children's Nurse Education (or other education provider) to receive your Record of Competence Achievement and keep a copy for your own records.



Appendix (vii) Learner Evaluation – eLearning



eLEARNING MODULE FOR REGISTERED NURSES AND MIDWIVES TO UNDERTAKE VENEPUNCTURE/ PERIPHERAL INTRAVENOUS CANNULATION

LEARNER EVALUATION-ELEARNING

PLEASE COMPLETE AND RETURN FORM TO PROGRAMME FACILITATOR AT THE END OF THE PROGRAMME.

Provider:..... Date:.....

Unit 1. Introduction and Background

Comments:

.....

.....

Unit 2. Venous Sites Selection

Comments:

.....

.....

Unit 3. Preparation for Procedure

Comments:

.....

.....

Unit 4. Procedure

Comments:

.....

.....

Unit 5. Aftercare

Comments:

.....

.....

Thank you for taking the time to fill out this evaluation.

Your comments will help to continuously evaluate the programme.

.....



Appendix (viii) Learner Evaluation – Blended Learning Programme



Office of the
Nursing Services Director

PROGRAMME FOR REGISTERED NURSES AND MIDWIVES TO UNDERTAKE VENEPUNCTURE/ PERIPHERAL INTRAVENOUS CANNULATION

LEARNER EVALUATION-BLENDED LEARNING PROGRAMME

PLEASE COMPLETE AND RETURN FORM TO PROGRAMME FACILITATOR AT THE END OF THE PROGRAMME.

Provider:..... Date:.....

Did the programme content support your knowledge in developing your skills?

Yes []

No []

Rate the programme overall:-content & presentation, handouts, reading material, reference list & so on.

Very Good

5

4

3

2

1

Poor

Would you recommend this Programme to a colleague?

Yes []

No []

Can you suggest any changes that would enhance the programme to meet your learning needs?

.....

.....

.....

.....

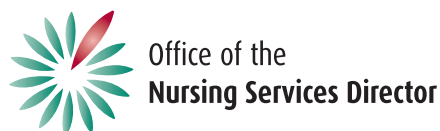
Thank you for taking the time to fill out this evaluation.

Your comments will help to continuously evaluate the programme.



Office of the
Nursing Services Director

Appendix (ix) Facilitator Evaluation



PROGRAMME FOR REGISTERED NURSES AND MIDWIVES TO UNDERTAKE VENEPUNCTURE/ PERIPHERAL INTRAVENOUS CANNULATION

FACILITATOR EVALUATION

PLEASE COMPLETE AND RETURN FORM TO PROGRAMME FACILITATOR AT THE END OF THE PROGRAMME.

Provider:..... Date:.....

How was the practice session received by the group?

.....

.....

.....

Was there interaction between yourself and the group? Please comment

.....

.....

.....

Did the resources provided in the classroom meet your requirements? (i.e. multi-media, flip chart etc.).
Please comment:

.....

.....

How would you rate your delivery overall?

Very good 5 4 3 2 1 Not good

Thank you for taking the time to fill out this evaluation.

Your comments will help to continuously evaluate the programme.



Appendix x

National Venepuncture Programme **Learner Handbook**



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1 Introduction

1.1 Programme Philosophy

The programme philosophy is based on beliefs and values pertaining to nursing and midwifery knowledge, practice and education. Nurses and midwives practice in ways that are independent, dependant and interdependent, when they practice with and amongst other healthcare professionals. Nurses and midwives practice within a changing and evolving healthcare environment and therefore are required to constantly develop their knowledge, skills and attitudes, to respond to evolving health care need by expanding their practice to deliver safe, effective and efficient care. Nursing and midwifery practice is underpinned by knowledge that is continually evolving and therefore must use the best available evidence to guide their practice. Nurses and midwives undertaking this programme in venepuncture will be competent practitioners in this expanded area of practice and therefore will deliver a more responsive timely service that will improve the patient's journey within the healthcare service.

2 Rationale for the Programme

A fundamental component of the *HSE Transformation Programme 2007-2010* is a commitment to ensure that patients are treated in the health setting most appropriate to their needs, while at the same time maximising the "value for money" of health care resources. The Scope of Nursing & Midwifery Practice (An Bord Altranais, 2000) and the Code of Professional Conduct (An Bord Altranais, 2000) provide the framework for nurses and midwives to expand their role. Venepuncture is now considered an "expansion of practice" that nurses and midwives can actively pursue in order to facilitate the delivery of holistic care to patients. In order to expand their roles, nurses and midwives have a professional responsibility to ensure they have the necessary knowledge, skills and competence to meet the needs of patients. The Office of the Nursing Services Director, working in collaboration with all key stakeholders, have developed this national programme to ensure standardisation of education, training and competence validation, in the skill of venepuncture, for nurses and midwives.



3 Glossary of Terms

Aseptic Technique:

Aseptic technique is implemented during any invasive procedure that by passes the body's natural defences e.g. the skin or when handling equipment such as needles that have been used during the procedure. This technique is used to reduce the potential problem of introducing pathogenic micro organisms into the body when the integrity and /or effectiveness of the natural body defences have been reduced.

(Jamieson et al., 1988, Dougherty and Lister, 2009)

Assessor:

An assessor is an identified nurse or midwife who has undertaken a similar educational and clinical programme and is a competent expert practitioner. It is recommended that nurses and midwives develop their competence within specific disciplines according to their area of practice.

Competence:

The ability of the registered nurse or midwife to practice safely and effectively, fulfilling his or her professional responsibility within his or her scope of practice.

(An Bord Altranais, 2000)

Child:

The term child refers to neonate, infant, child and adolescent's under 18 years of age unless otherwise stated.

Family Centred Care:

A way of caring for children and their families within health services which ensures that care is planned around the whole family, not just the individual child/person, and in which all the family members are recognised as care recipients.

(Shields et al., 2006)

Nurse:	<p>The word nurse means a person registered in the Live Register of Nurses as provided for in Section 27 of the Nurses Act 1985 and includes a midwife and nursing includes midwifery - Code of Professional Conduct for each Nurse and Midwife.</p> <p>(An Bord Altranais, 2000)</p>
Order of Draw:	<p>The order of blood draw refers to the sequence in which blood collection bottles should be filled.</p> <p>(WHO, 2002)</p>
Parent/Legal Guardian:	<p>The term parent or legal guardian is used to describe the parent and/ or legal guardian of the child who is under the age of 16 years.</p> <p>(A Practical Guide to Immunisations, HSE, 2008)</p>
Safety Blood Collection Systems:	<p>Safety blood collection systems are single use blood collection systems that enhance safer venepuncture. Equipment utilised for the procedure is approved for use in this organisation.</p>
Venepuncture:	<p>Describes the introduction of a needle into a vein to obtain a blood sample for haematological, biochemical or bacteriological analysis (also known as phlebotomy, venesection, drawing or taking blood).</p> <p>(Lavery & Ingram, 2005)</p>



4 Aim

The overall aim of this programme is to facilitate registered nurses and midwives to develop the knowledge, skills and competence that will enable them to safely and successfully perform venepuncture for service users in their care.

5 Objectives

- i. The programme will provide a standardised approach towards the education, training and competence validation of nurses and midwives, undertaking the skill of venepuncture
- ii. It will facilitate the transferability and recognition of venepuncture skills acquired by nurses and midwives across the Health Service Executive

6 Criteria to Undertake the Programme

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais
- Be employed by the HSE
- Be approved by the Clinical Nurse/Midwife Manager
- Be employed in an area where venepuncture is required to enhance service provision
- Accept personal responsibility and accountability for undertaking venepuncture

7 Application Process

Nurses and midwives who wish to undertake the education programme must have approval from their line manager and make application to their local educational provider.

8 Learning Outcomes

On completion of this venepuncture programme, the learner will be able to:

- Identify anatomical structures and explain the appropriate choice of venous sites applicable to venepuncture
- Understand the role of the nurse and midwife in undertaking the skill of venepuncture.
- Outline the indications for venepuncture
- Undertake communication with patients and their families to facilitate safe and effective venepuncture
- Demonstrate knowledge of:
 - o Preparing for the procedure and obtaining informed consent
 - o The effective technique for the procedure
 - o Order of blood draw and the correct use of equipment
 - o Documentation and the correct labelling process
 - o The management of complications associated with venepuncture
- Successfully complete the theoretical clinical knowledge assessment.
- Successfully complete the supervised practice assessments and the final competence assessment within a twelve week time frame from commencement of the theoretical component.
- Practice independently and maintain competence in accordance with scope of practice and local policy.

The learning outcomes reflect a very specific level of knowledge that incorporates An Bord Altranais - Domains of Competence for Nurses and Midwives (An Bord Altranais, 2005).



9 Programme Outline

There are five elements in this blended learning programme. Nurses and midwives must successfully complete all five elements of the programme to be deemed clinically competent.

1: eLearning Module	The eLearning element of the programme introduces the theory and practice of venepuncture and includes practical demonstrations on video. There is also an online self assessment to help you prepare for your Clinical Knowledge Assessment. The module should take between sixty and ninety minutes to complete with a further 15 to 20 minutes required for the on-line self-assessment.
2: Clinical Knowledge Assessment	The second element of the programme is an assessment of your theoretical knowledge of venepuncture. It is a multiple choice examination of one hour's duration. Please contact your line manager or local educational provider to take the assessment.
3: Clinical Skills Demonstration and Practice Session	The Clinical Skills Demonstration and Practice session gives you the opportunity to practice the skill of venepuncture in an educational environment. Contact your line manager or local educational provider to arrange this.
4: Supervised Clinical Practice	Supervised Clinical Practice enables you to practice the skill of venepuncture in a clinical environment under supervision. A children's nurse may be required to undergo additional supervised practice sessions in order to achieve competence for: <ul style="list-style-type: none"> • Neonates • 0 to 1 year olds • 1 to five-year-olds • 5 year olds and above Local organisational policy will identify the number of supervised clinical practice sessions required. These sessions must be arranged in conjunction with your line manager.
5: Competence Assessment	This is an assessment of your competence to undertake the skill of venepuncture. To undertake this assessment, you need to: <ul style="list-style-type: none"> • Agree a date for the competence assessment to take place with your clinical practice supervisor or assessor • Undertake the peripheral intravenous cannulation competence assessment within the twelve week time frame from commencement of the eLearning module

9.1 eLearning Module

The venepuncture programme or eLearning module consists of five units containing learning outcomes, theoretical content, self assessment questions and resources provided for supplementary reading. The venepuncture module will align itself to the following standardised format:

Components		Learning Outcomes
Unit 1	Introduction <ul style="list-style-type: none"> Welcome Elements of the programme Prerequisites for the blended learning programme eLearning module contents Disclaimer Using the eLearning module Module Learning Outcomes 	<ul style="list-style-type: none"> Identify anatomical structures and explain the appropriate choice of sites applicable to venepuncture Describe the role of the nurse/midwife in undertaking the skill of venepuncture Outline the indications for venepuncture Communicate with patients to facilitate safe and effective venepuncture Demonstrate knowledge of: <ul style="list-style-type: none"> Preparation for procedure and how to obtain informed consent The effective technique for the procedure Blood draw sequence and the correct use of equipment Documentation and correct labeling Management of complications Complete the online self assessment
Unit 2	Venous Site Selection <ul style="list-style-type: none"> Structure of Veins Anatomy of Veins, Nerves and Arteries Selection of a Venous Site Clinical Assessment to Choose a Vein 	<ul style="list-style-type: none"> Identify the relevant veins, nerves and arteries that relate to venepuncture Undertake a clinical assessment to choose the appropriate vein
Unit 3	Preparation for Procedure <ul style="list-style-type: none"> Hand Hygiene. Personal Protective Equipment. Management and Disposal of Sharps. Blood Borne Viruses. Choosing Equipment. Order of Blood Draw. 	<ul style="list-style-type: none"> Identify the appropriate hand hygiene and personal protective equipment required for the procedure Explain the safe management and disposal of sharps, and the risks associated with the transmission of blood borne viruses during the procedure Determine the blood collection sets and bottles required for the procedure
Unit 4	Procedure <ul style="list-style-type: none"> Indications for Procedure Communication Consent Topical Anaesthetic Agents Tourniquet Use and Application Standard Equipment for the Venepuncture Procedure The Venepuncture Procedure 	<ul style="list-style-type: none"> Outline the indications for venepuncture and explain the five-step process to obtain informed consent Describe the importance of communicating effectively with the patient (adult or child) and family Describe the pharmacological and non pharmacological methods of pain relief Explain the requirement for topical anaesthetic agents and be familiar with their indications and application Identify when other health care professionals should be involved in assisting with the procedure Discuss the application of the tourniquet Describe the standard equipment required for the venepuncture procedure and how to safely carry it out
Unit 5	Aftercare <ul style="list-style-type: none"> Potential Problems and Complications Documentation Self-Assessment 	<ul style="list-style-type: none"> Identify potential problems and complications associated with venepuncture and outline the appropriate actions to prevent and treat these complications Critically discuss the importance of documentation in relation to the venepuncture procedure



9.2 Programme Accessibility

The programme will be facilitated through the Centres of Nursing/Midwifery/Children's Nurse Education/ practice development units or designated educational providers. The eLearning theoretical module is accessible for learners through www.hseland.ie. Where nurses and midwives cannot access the on-line theoretical component of venepuncture, they may attend their local Centre of Nursing/Midwifery/Children's Nurse Education, practice development units or designated educational provider.

9.3 Programme Duration

The theoretical and self assessment component of the programme is provided in an eLearning module and is completed at the learner's own time and pace. It is recommended that the theoretical component is sixty to ninety minutes duration, with the on-line self assessment taking twenty minutes and is accessible for the learner through www.hseland.ie. The clinical knowledge assessment is a multiple choice examination facilitated through the Centres of Nursing/Midwifery/Children's Nurse Education, practice development units or designated educational provider and is of one hour duration. The supervised clinical demonstration and practice session is facilitated through the Centres of Nursing/Midwifery/Children's Nurse Education, practice development units or designated educational provider and is recommended as a four hour session. Supervised clinical practice assessments and the final competence assessment must be undertaken in the clinical area and must be completed within a twelve week time frame from commencement of the eLearning module / theoretical component.

9.4 Theoretical Assessment

A clinical knowledge assessment is undertaken prior to the clinical skills demonstration and practice session and the nurse or midwife must achieve a pass. The examination is a multiple choice exam and takes approximately one hour.

9.5 Clinical Assessment

- The nurse or midwife must successfully complete a pre- defined number of supervised clinical practice assessments (six to ten), before undertaking the final competence assessment
- Each assessment must be signed by a clinical practice supervisor or assessor –Record of Supervised Practice Assessment (appendix i)
- The supervised practice assessments and final competence assessment must be completed within twelve weeks of undertaking the theoretical instruction
- It is the responsibility of the nurse or midwife to:
 - o ensure that the Record of Supervised Practice Assessments is completed (appendix i)
 - o arrange a date with the clinical practice supervisor/ assessor to undertake the venepuncture final competence assessment
- If successful at final competence assessment, the Final Competence Assessment Form (appendix ii) is completed by the clinical practice supervisor/ assessor. The signed Final Competence Assessment Form is returned to the line manager who completes the Skills Completion Checklist (appendix iii)
- If unsuccessful at the final competence assessment, additional supervised practice assessments are required and a date rescheduled for the final competence assessment
- It is the responsibility of the nurse or midwife to retain a copy of the Skills Completion Checklist and send a copy to the Centre of Nursing/Midwifery/ Children's Nurse Education, practice development units, or designated service provider in order to receive a National Standardised Certificate of Competence Achievement
- In order to maintain competence, it is recommended that the nurse or midwife undertakes a number of venepuncture procedures per month (as per local policy)

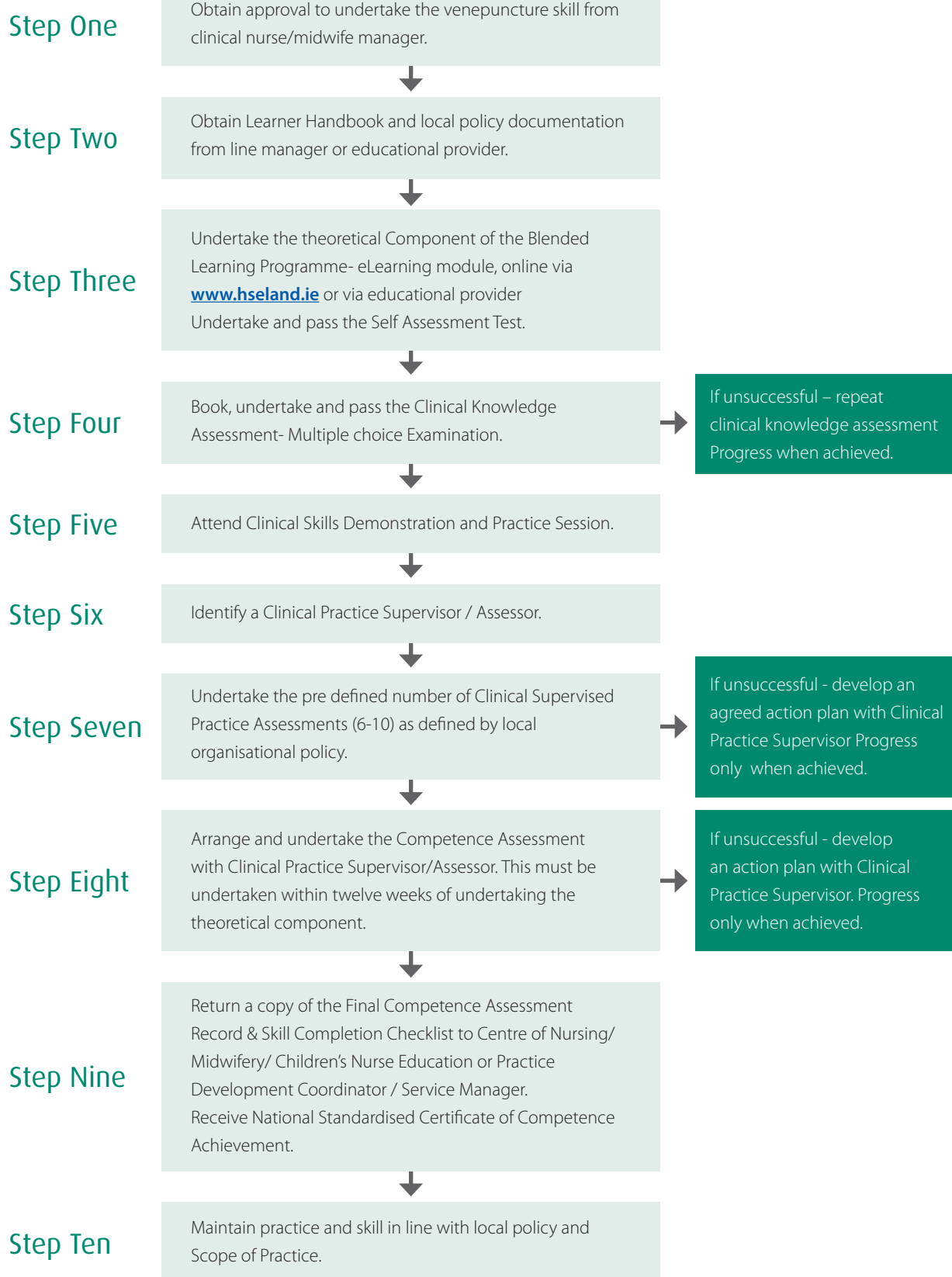
9.6 Certification

A Certification of Competence Achievement is issued by the educational provider on receipt of the Final Competence Assessment Form (appendix ii) and Skill Completion Checklist (appendix iii). The National Standardised Certificate of Competence Achievement enables transferability and recognition of venepuncture skills across the health service.



10 Skill Pathway

The skill pathway outlines the steps involved in order for the nurse or midwife to obtain competence in undertaking the skill of venepuncture.



10.1 Ten Step Approach to the Skill Pathway

Step One Approval to Undertake Skill

Discuss with your line manager and obtain approval to undertake the venepuncture programme.

Step Two Learner Handbook and Policy Documents

Obtain Learner Handbook and local policy documents from your manager or educational provider. Read and familiarise yourself with this information.

Step Three Theoretical Components of the Programme

Undertake the theoretical component of the programme. This is provided as an online eLearning module. The module consists of an introduction to the theory and practice of venepuncture with practical demonstrations on video. The module contains a self assessment section to ensure learning has taken place on the key aspects of the module. Evidence of a pass in the self assessment is required in order to proceed to the next step. The programme may also be delivered by your local Centre of Nursing/Midwifery/ Children's Nurse Education or practice development unit or designated educational provider.

Step Four Clinical Knowledge Assessment

Upon completion of the theoretical component, proceed to undertake the clinical knowledge theoretical assessment by booking a place through the local Centre of Nursing/Midwifery/Children's Nurse Education or practice development unit or designated educational provider. This is a multiple choice exam, which takes approximately one hour.

Step Five Clinical Skills Demonstration and Practice Session

Undertake a Clinical Skills Demonstration and Practice Session to practice the skill of venepuncture in an educational environment. This can be arranged by booking a place through the local: Centre of Nursing/Midwifery/Children's Nurse Education or practice development unit or designated educational provider.

Step Six Clinical Practice Supervisor/Assessor

In conjunction with your clinical nurse/midwife manager, identify a clinical practice supervisor/assessor, who will support you to undertake the required number of supervised clinical practice assessments, applicable to your area of clinical practice.



Step Seven Clinical Supervised Practice

In conjunction with your clinical practice supervisor/assessor, a pre-defined number of practice assessments (six to ten) must be undertaken. Your clinical practice supervisor/assessor must assess each session and complete the Record of Supervised Practice Assessments (appendix iv) by grading your skills in fourteen areas and signing the form for each clinical practice session. You are graded according to your skills in:

- Correct identification of patient
- Appropriate patient preparation, communication and consent procedure
- Choice and handling of equipment confidently and correctly
- Consideration of personal safety and that of others, taking into consideration clinical holding and distraction techniques that may be required
- Correct identification of a suitable vein
- Appropriate venous dilation methods
- Provision of local anaesthesia as required (as per local organisational policy)
- Needle inserted and sample obtained
- Correct order of draw for multiple samples
- Appropriate troubleshooting techniques
- Appropriate technique followed throughout
- Needle removed safely
- Disposal of sharps safely
- Completes documentation and sample dispatch

Local organisational policy identifies the number of supervised clinical practice assessments required for venepuncture. For example, a children's nurse may be required to undergo additional supervised clinical practice assessments in order to achieve competence for:

- Neonates
- 0-1 year olds
- 1-5 year olds
- 5 year olds and above.

Step Eight Competence Assessment

This is an assessment of clinical competence to undertake the skill of venepuncture. This must be undertaken within twelve weeks of undertaking the theoretical component. When the nurse or midwife is deemed ready for the clinical competence assessment, they must:

- Agree a date for the clinical competence assessment with their clinical practice supervisor/assessor
- Undertake the venepuncture competence assessment. If successful, the Final Competence Assessment Form (appendix ii) is completed by the clinical practice supervisor/assessor. The signed Final Competence Assessment Form is returned to the line manager, who completes the Skills Completion Checklist (appendix iii). If unsuccessful additional supervised practice assessments should be arranged and a date rescheduled for the final competence assessment.

Step Nine Record of Competence Achievement

The National Standardised Certificate of Competence Achievement is issued by your local Centre of Nursing/Midwifery/Children's Nurse Education, practice development unit or designated educational provider, on receipt of the Final Competence Assessment Form and Skill Completion Checklist.

Step Ten Maintenance of Competence

Upon completion of the skill pathway, each nurse or midwife should have the knowledge, skills and competence to practice the skill of venepuncture across healthcare organisations within the HSE. In order to maintain competence it is recommended that up to ten venepuncture procedures per month is required (or as predefined in local organisational policy). It is also important to keep up to date with changes in best practice, local policy and to keep abreast of equipment utilised for the procedure.



References

- An Bord Altranais (2000) Scope of Nursing and Midwifery Practice Framework. An Bord Altranais: Dublin.
- An Bord Altranais (2000) The Code of Professional Conduct for each Nurse and Midwife. An Bord Altranais: Dublin.
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. Dublin: An Bord Altranais. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- Dougherty, L. & Lister, S. (2009) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 7th Ed. Wiley Blackwell Pub:Chicester
- Health Service Executive (2008) A Practical Guide to Immunisations. HSE: Dublin
- Health Service Executive (2008) Findings from the Survey of Venepuncture and Intravenous Cannulation Education and Training Among Nurses and Midwives Employed within the Republic of Ireland. HSE: Dublin.
- Jamieson, E. et al., (1988) Guideline for Clinical Nursing Practice. Churchill Livingstone: London.
- Lavery, I., and Ingram, P. (2005) Venepuncture: Best Practice. Nursing Standard. 19 (49) pp 55-65
- Shields, L., Pratt, J. and Hunter, J. (2006) Family-Centred Care: A Review of Qualitative Studies. Journal of Clinical Nursing, 15: 1317 – 1323
- WHO (2002) World Health Organisation - Collaborating Centre for Patient Safety Solutions.

Resources

- An Bord Altranais (2002) Recording Clinical Practice Guidance to Nurses and Midwives An Bord Altranais: Dublin
- An Bord Altranais (2007) Requirements and Standards for Post-Registration and Continuing Competence Nursing and Midwifery Education Programmes-Incorporating the National Framework of Qualifications An Bord Altranais: Dublin
- Department of Health and Children (2005) The Prevention of Transmission of Blood-Borne Diseases in the Health-Care Setting: <http://www.dohc.ie/>
- Health Information and Quality Authority (2009) National Standards for the Prevention and Control of Health Care Associated Infections. HIQA: Dublin
- Health Service Executive. (2001) Health Protection Surveillance Centre. The Strategy for the Control of Antimicrobial Resistance in Ireland: <http://www.ndsc.ie/>
- Health Service Executive (2005) The Control and Prevention of MRSA in Hospitals and in the Community: A Strategy for the Control of Antimicrobial Resistance in Ireland. Health Protection Surveillance Centre. <http://www.ndsc.ie/>
- Health Service Executive (2005) Strategy for the Control of Antimicrobial Resistance in Ireland-Guidelines for Hand Hygiene in Irish Health Care Settings. HSE: Dublin. <http://www.hpsc.ie/>
- Health Service Executive (2007) Infection Control Action Plan. http://www.hse.ie/eng/newsmedia/2007_Archive/June_2007/_HSE_committed_to_tackling_MRSA.html
- Health Service Executive (2007) The Prevention and Control of Health Care Associated Infections in Ireland. HSE: Dublin
- Health Service Executive (2007) Quality & Risk Management Standards.
- Health Service Executive (2007) Risk Management in the HSE: An Information Handbook
- Health Service Executive South Eastern Area (2007) Guidelines for Nursing/Midwifery Staff Undertaking Peripheral Intravenous Cannulation and/or Venepuncture in Children. Health Service Executive South Eastern Area.
- Health Service Executive (2008) Findings from the Survey of Venepuncture and Intravenous Cannulation Education and Training Among Nurses and Midwives Employed within the Republic of Ireland. Stationary Office: Dublin
- Health Service Executive (2008) A Practical Guide to Immunisation Stationary Office: Dublin.
- Health Service Executive (2010) Infection Control E Learning Module: <http://www.hseland.ie/>
- Health Service Executive (2010) A Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives. Stationary Office: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives Undertaking Peripheral Intravenous Cannulation in Adults. HSE: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives Undertaking Peripheral intravenous Cannulation in Children. HSE: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives Undertaking Venepuncture in Adults. HSE: Dublin
- Health Service Executive (2010) National Clinical Policy and Procedural Guideline for Nurses and Midwives Undertaking Venepuncture in Children. HSE: Dublin
- Health Information and Quality Authority (2008) National Hygiene Services Quality Review Standards and Criteria: <http://www.hiqa.ie/>
- National Health Service Education for Scotland (2004) Transferring the Skills: A Quality Assurance Framework for Venepuncture, Cannulation and Intravenous Therapy:



Venepuncture – Record of Supervised Practice Assessments

The purpose of this document is to provide evidence of supervised practice and demonstrate competence progression under supervision.

Name & (Initials)											
Job Title											
Organisation											
Department											
Clinical Skill		Venepuncture	Date Started:				Date Completed:				
Clinical Assessor Name & (Initials)		1.		2.							
Clinical Assessor Name & (Initials)		3.		4.							
Clinical Assessor Name & (Initials)		5.		6.							
The nurse or midwife must be able to discuss the rationale for each of the actions and demonstrate competence in the practical application of these skills as applicable											
Skill Required		10 SELF ASSESSMENTS									
		Achieved = ✓					Not Achieved =0				
		1	2	3	4	5	6	7	8	9	10
A	Correct identification of patient										
B	Appropriate patient preparation and communication										
C	Chooses and handles equipment confidently and correctly										
D	Considers personal safety and that of others										
E	Correct identification of suitable vein										
F	Appropriate venous dilation methods										
G	Provision of local anaesthesia as required (as per health care organisation policy)										
H	Needle inserted and sample obtained										
I	Correct order of draw for multiple samples										
J	Appropriate troubleshooting techniques										
K	Aseptic technique followed throughout										
L	Needle removed safely and care of site given										
M	Disposal of sharps safely										
N	Completes documentation, labelling, and sample dispatch (as per health care organisation policy)										
Initial of Clinical Assessor:											
Initial of Nurse/Midwife											
Date:											

The number of these supervisions will vary between individuals so please copy this form if you require more supervised assessment

Venepuncture – Final Competence Assessment

Name			
Job Title			
Organisation			
Department			
Clinical Skill	Venepuncture		
Clinical Assessor			
The nurse or midwife demonstrated:		Pass	Refer
1	Appropriate communication with the patient throughout		
2	Safe technique throughout the whole procedure		
3	Familiarity with equipment		
4	Aseptic technique throughout		
5	Correct positioning of patient and preparation of environment		
6	Chooses appropriate vein site and equipment for venepuncture		
7	Provides local anaesthesia (as per health care organisation policy)		
8	Completes venepuncture procedure correctly and safely (as per health care organisation policy)		
9	Disposes of sharps and equipment correctly and safely		
10	Completes documentation in line with local health care organisation policy.		
Outcome (tick ✓)		Pass <input type="checkbox"/>	Refer <input type="checkbox"/>

OUTCOME AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:
Note of action if referred for further assessment:		
ACTION PLAN AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:



Appendix iii Venepuncture Skill Completion Checklist

Venepuncture Skill – Completion Checklist

Name			
Job Title			
Organisation			
Department/Ward/Unit			
Clinical Skill	Venepuncture		
Clinical Assessor			
Date Programme Commenced (must be completed within 3 months)			
Date Programme Completed			
The nurse /midwife will be able to discuss the rationale for each of the following actions and demonstrate competence in the practical application of venepuncture skills			
	Actions and skills required	Achieved	Date
1	Preliminary discussion with line manager and be approved to undertake the venepuncture skill pathway		
2	Read "Name of Organisation- Venepuncture Policy"		
3	Read the "Code of Professional Conduct" and the "Scope of Nursing and Midwifery Practice Framework" (An Bord Altranais, 2000)		
4	Completed the HSE eLearning component of the blended learning education programme or Attended approved theoretical programme provided by the <i>Name of Organisation</i>		
5	Successfully completed the HSE Clinical Knowledge Assessment or its equivalent		
6	Attended a skills demonstration and practice session and has become familiar with and practiced with equipment used in <i>Name of Organisation</i>		
7	Has been deemed suitable to proceed to supervised practice by educator		
8	Completed and recorded 6-10 supervised practice assessments		
9	Successfully completed the Final Competence Assessment and has been deemed competent by the Clinical Assessor for independent practice in <i>Name of Organisation</i>		
Competence agreed for Venepuncture I agree to maintain my clinical competence in venepuncture in line with the Scope of Nursing and Midwifery Practice Framework (An Bord Altranais 2000) (recommend performing x 10 venepuncture Procedures per month)			
Date	Nurse/Midwife	Clinical Assessor:	
	Sign:	Sign:	
	Print:	Print:	

Clinical Nurse/Midwife Manager:

I am satisfied that the above named person has attended the necessary education & training and has completed the related competence programme.

Sign Print Date

*Send Copy of completed checklist to Centre of Nursing/Midwifery/Children's Nurse Education (or other education provider) to receive your Record of Competence Achievement and keep a copy for your own records.

Appendix xi

National Peripheral Intravenous Cannulation Programme **Learner Handbook**



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(Local adaptation required)

1 Introduction

1.1 Programme Philosophy

The programme philosophy is based on beliefs and values pertaining to nursing and midwifery knowledge, practice and education. Nurses and midwives practice in ways that are independent, dependant and interdependent, when they practice with and amongst other healthcare professionals. Nurses and midwives practice within a changing and evolving healthcare environment and therefore are required to constantly develop their knowledge, skills and attitudes, to respond to evolving health care need by expanding their practice to deliver safe, effective and efficient care. Nursing and midwifery practice is underpinned by knowledge that is continually evolving and therefore must use the best available evidence to guide their practice. Nurses and midwives undertaking this programme in Peripheral Intravenous Cannulation will be competent practitioners in this expanded area of practice and therefore will deliver a more responsive timely service that will improve the patient's journey within the healthcare service.

2 Rationale for the Programme

A fundamental component of the *HSE Transformation Programme 2007-2010* is a commitment to ensure that patients are treated in the healthcare setting most appropriate to their needs, while at the same time maximising the "value for money" of health care resources. The *Acute Hospital Inpatient Bed Utilisation Review (2007)* identified that 12% of 3035 patients surveyed, with an admission criteria of intravenous therapy, could have received this therapy outside the acute hospital setting.

The Scope of Nursing & Midwifery Practice (An Bord Altranais, 2000) and the Code of Professional Conduct (An Bord Altranais, 2000) provide the framework for nurses and midwives to expand their role. Peripheral Intravenous Cannulation is now considered an "expansion of practice" that nurses and midwives can actively pursue in order to facilitate the delivery of holistic care to patients. In order to expand their roles, nurses and midwives have a professional responsibility to ensure they have the necessary knowledge, skills and competence to meet the need of patients. The Office of the Nursing Services Director, working in collaboration with all key stakeholders, have developed this national programme to ensure standardisation of education, training and competence validation in peripheral intravenous cannulation for nurses and midwives.



3 Glossary of Terms

Aseptic Technique:

Aseptic technique is implemented during any invasive procedure that bypasses the bodies natural defences e.g. the skin or when handling equipment such as peripheral intravenous cannulae. This technique is used to reduce the potential problem of introducing pathogenic micro organisms into the body when the integrity and /or effectiveness of the natural body defences have been reduced.

(Jamieson et al, 1988, Dougherty and Lister, 2009)

Assessor:

An assessor is an identified nurse or midwife who has undertaken a similar educational and clinical programme and is a competent expert practitioner. It is recommended that nurses and midwives develop their competence within specific disciplines, according to their area of practice.

Cannula:

A cannula is a short and flexible tube, containing a needle, or introducer, which pierces the peripheral vein, to provide access to the vascular circulation for the administration of intravenous fluids and medications.

Child:

The term child refers to neonate, infant, child and adolescent's under 18 years of age unless otherwise stated.

Competence:

The ability of the registered nurse or midwife to practice safely and effectively, fulfilling his or her professional responsibility within their scope of practice.

(An Bord Altranais, 2000).



Family Centred Care:

A way of caring for children and their families within health services which ensures that care is planned around the whole family, not just the individual child/person, and in which all the family members are recognised as care recipients.

(Shields et al., 2006)

Nurse:

The word nurse means a person registered in the Live Register of Nurses as provided for in Section 27 of the Nurses Act 1985 and includes a midwife and nursing includes midwifery – Code of Professional Conduct for each Nurse and Midwife.

(An Bord Altranais, 2000)

Parent/Legal Guardian:

The term parent or legal guardian is used to describe the parent and or legal guardian of the child who is under the age of 16 years.

(A Practical Guide to Immunisations- HSE, 2008)

**Peripheral Intravenous
Cannulation:**

Peripheral intravenous cannulation is the introduction of a short, flexible, hollow plastic tube or cannula containing a needle or introducer, into a peripheral vein to provide access to the vascular circulation, for the administration of fluids and medications.



4 Aim

The overall aim of this programme is to facilitate registered nurses and midwives to develop the knowledge, skills and competence that will enable them to safely and successfully perform peripheral intravenous cannulation for service users in their care.

5 Objectives

- I. The programme will provide a standardised approach towards the education, training and competence validation of nurses and midwives undertaking the skill of peripheral intravenous cannulation
- II. It will facilitate the transferability and recognition of peripheral intravenous cannulation skills acquired by nurses and or midwives across the Health Service Executive

6 Criteria to Undertake the Programme

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais
- Be employed in the HSE
- Have successfully completed education and training in the Management and Administration of Intravenous Medication
- Be approved by the Clinical Nurse/Midwife Manager
- Be employed in an area where peripheral intravenous cannulation is required to enhance service provision
- Accept personal responsibility and accountability for undertaking peripheral intravenous cannulation

7 Application Process

Nurses and midwives who wish to undertake the education programme must have approval from their line manager and make application to their local educational provider.

8 Learning Outcomes

On completion of this peripheral intravenous cannulation programme, the learner will be able to:

- identify anatomical structures and explain the appropriate choice of sites applicable to peripheral intravenous cannulation
- describe the role of the nurse or midwife in undertaking the skill of peripheral intravenous cannulation
- outline the indications for peripheral intravenous cannulation
- communicate with patients and their families to facilitate safe and effective peripheral intravenous cannulation
- demonstrate knowledge of:
 - procedure preparation and how to obtain informed consent
 - the effective technique for the procedure
 - the documentation and management of complications
- complete the online self assessment
- successfully complete the clinical knowledge assessment
- successfully complete the supervised practice assessments and final competence assessment within a twelve week time frame from commencement of the theoretical component
- practice independently and maintain competence in accordance with scope of practice and local policy

The learning outcomes reflect a very specific level of knowledge that incorporates An Bord Altranais - Domains of Competence for Nurses and Midwives (An Bord Altranais, 2005).



9 Programme Outline

There are five elements in this blended learning programme. Nurses and midwives must successfully complete all five elements of the programme to be deemed clinically competent.

1: eLearning Module	The eLearning element of the programme introduces the theory and practice of peripheral intravenous cannulation and includes practical demonstrations on video. There is also an online self assessment to help you prepare for your Clinical Knowledge Assessment. The module should take between sixty and ninety minutes to complete with a further fifteen to twenty minutes required for the self-assessment.
2: Clinical Knowledge Assessment	The second element of the programme is an assessment of your theoretical knowledge of peripheral intravenous cannulation. It is a multiple choice examination which takes approximately one hour. Please contact your line manager or local educational provider to take the assessment.
3: Clinical Skills Demonstration and Practice Session	The Demonstration and Practice session gives you the opportunity to practice the skill of peripheral intravenous cannulation in an educational environment. Contact your line manager or local educational provider to arrange this.
4: Supervised Clinical Practice	Supervised Clinical Practice enables you to practice the skill of peripheral intravenous cannulation in a clinical environment under supervision. A children's nurse may be required to undergo additional supervised practice assessments in order to achieve competence for: <ul style="list-style-type: none"> • Neonates • 0 – 1 year olds • 1 - 5 year olds • 5 year olds and over Local organisational policy will identify the number of supervised clinical practice assessments required. These sessions must be arranged in conjunction with your line manager.
5: Competence Assessment	This is an assessment of your competence to undertake the skill of peripheral intravenous cannulation. To undertake this assessment, you need to: <ul style="list-style-type: none"> • agree a date for the competence assessment to take place with your clinical practice supervisor or assessor to undertake the peripheral intravenous cannulation final competence assessment within the twelve week time frame from commencement of the eLearning module.

9.1 eLearning Module

The peripheral intravenous cannulation eLearning module consists of five units containing learning outcomes, theoretical content, self-assessment questions and resources provided for supplementary reading. The peripheral intravenous cannulation module consists of the following:

Components		Learning Outcomes
Unit 1	Introduction <ul style="list-style-type: none"> Welcome Elements of the programme Prerequisites for the blended learning programme eLearning module contents Disclaimer Using the eLearning module Module Learning Outcomes 	<ul style="list-style-type: none"> Identify anatomical structures and explain the appropriate choice of sites applicable to peripheral intravenous cannulation Describe the role of the nurse/midwife in undertaking the skill of peripheral intravenous cannulation Outline the indications for peripheral intravenous cannulation Communicate with patients to facilitate safe and effective peripheral intravenous cannulation Demonstrate knowledge of: <ul style="list-style-type: none"> Preparation for procedure and how to obtain informed consent The effective technique for the procedure Blood draw sequence and the correct use of equipment Documentation and correct labeling Management of complications Complete the online self assessment
Unit 2	Venous Site Selection <ul style="list-style-type: none"> Structure of Veins Anatomy of Veins, Nerves and Arteries Selection of a Venous Site Clinical Assessment to Choose a Vein 	<ul style="list-style-type: none"> Identify the relevant veins, nerves and arteries that relate to peripheral intravenous cannulation Undertake a clinical assessment to choose the appropriate vein
Unit 3	Preparation for Procedure <ul style="list-style-type: none"> Hand Hygiene Personal Protective Equipment Management and Disposal of Sharps Blood Borne Viruses Choosing Equipment 	<ul style="list-style-type: none"> Identify the appropriate hand hygiene and personal protective equipment required for the procedure Explain the safe management and disposal of sharps and the risks associated with the transmission of blood borne viruses during the procedure Determine the type of peripheral intravenous cannula required
Unit 4	Procedure <ul style="list-style-type: none"> Indications for Procedure Communication Consent Topical Anaesthetic Agents Tourniquet Use and Application Standard Equipment for Procedure The Peripheral Intravenous Cannulation Procedure 	<ul style="list-style-type: none"> Outline the indications for peripheral intravenous cannulation and explain the five-step process to obtain informed consent Describe the importance of communicating effectively with the patient (adult or child) and family Describe the pharmacological and non pharmacological methods of pain relief Explain the requirement for topical anaesthetic agents and be familiar with their indications and application Identify when other health care professionals should be involved in assisting with the procedure Discuss the application of the tourniquet Describe the standard equipment required and how to safely carry out the peripheral intravenous cannulation procedure
Unit 5	Aftercare <ul style="list-style-type: none"> Maintenance of a Peripheral Intravenous Cannula Complications Removal of a Peripheral Intravenous Cannula Documentation 	<ul style="list-style-type: none"> Outline the monitoring and maintenance of the peripheral intravenous cannula taking account of the Peripheral Vascular Catheter Care Bundle Identify potential complications associated with peripheral intravenous cannulation and outline the appropriate actions to prevent and treat these complications Explain the indications and procedure for removal of a peripheral intravenous cannula Critically discuss the importance of documentation in relation to the peripheral intravenous cannulation procedure



9.2 Programme Accessibility

The programme will be facilitated through the Centres of Nursing/Midwifery & Children's Nurse Education, practice development units or designated educational providers. The eLearning theoretical module is accessible for learners through www.hseland.ie. Where nurses and midwives cannot access the on-line theoretical component of peripheral intravenous cannulation, they may attend their local Centre of Nursing/Midwifery/Children's Nurse Education, practice development units or designated educational provider.

9.3 Programme Duration

The theoretical and self assessment component of the programme is provided in an eLearning module and is completed at the learner's own time and pace. It is recommended that the theoretical component is of sixty-ninety minutes duration, with the on-line self assessment taking twenty minutes and is accessible for the learner through www.hseland.ie.

The clinical knowledge assessment is a multiple choice examination facilitated through the Centres of Nursing/Midwifery & Children's Nurse Education, practice development units or designated educational providers and is of one hour duration. The supervised clinical demonstration and practice session is Centres of Nursing/Midwifery & Children's Nurse Education, practice development units or designated educational providers and is recommended as a four hour session. Supervised clinical practice assessments and the final competence assessment must be undertaken in the clinical area and must be completed within a twelve week time frame from commencement of the eLearning theoretical component.

9.4 Theoretical Assessment

A clinical knowledge assessment is undertaken prior to the clinical skills demonstration and practice session and the nurse or midwife must achieve a pass. This is a multiple choice exam which takes approximately one hour.

9.5 Clinical Assessment

- The nurse or midwife must successfully complete a pre-defined number of supervised clinical practice assessments (6-10), before undertaking the final competence assessment
- Each assessment must be signed by a clinical practice supervisor/assessor –Record of Supervised Practice Assessment (appendix i)
- The supervised practice assessments and the final competence assessment must be completed within twelve weeks of undertaking the theoretical instruction
- It is the responsibility of the nurse or midwife to:
 - ensure that the Record of Supervised Practice Assessments is completed (appendix i)
 - arrange a date with the clinical practice supervisor/ assessor to undertake the peripheral intravenous cannulation final competence assessment
- If successful at final competence assessment, the Final Competence Assessment Form (appendix ii) is completed by the clinical practice supervisor/assessor. The signed Final Competence Assessment Form is returned to the line manager, who completes the Skills Completion Checklist (appendix iii)
- If unsuccessful at the final competence assessment, additional supervised practice assessments are required and a date rescheduled for the final competence assessment

Nurses or midwives will receive a Record of Final Competence Achievement (appendix ii) from the clinical practice supervisor/assessor when deemed competent in the skill of peripheral intravenous cannulation.

- The nurse or midwife must ensure that their clinical manager signs the Skills Completion Checklist Record (appendix iii)
- It is the responsibility of the nurse or midwife to retain a copy of the Skills Completion Checklist and send a copy to the Centre of Nursing/Midwifery/ Children's Nurse Education, practice development units or designated educational provider in order to receive a National Standardised Certificate of Competence Achievement
- In order to maintain competence, it is recommended that the nurse or midwife undertakes a number of peripheral intravenous cannulation procedures per month (as per local policy)

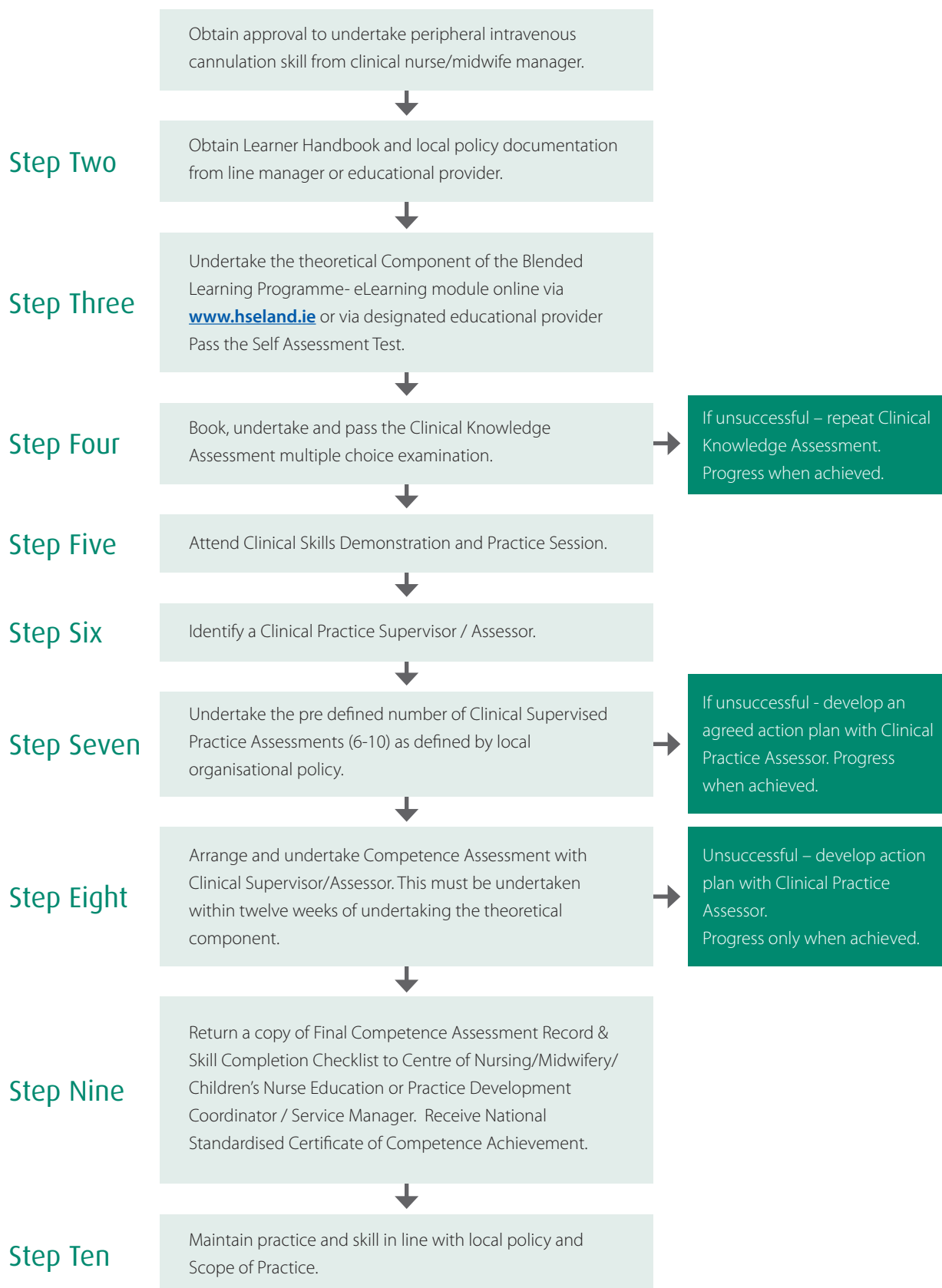
9.6 Programme Certification

A Certification of Competence Achievement is issued by the educational provider on receipt of the Final Competence Assessment Form (appendix ii) and Skill Completion Checklist (appendix iii). The National Standardised Certificate of Competence Achievement enables transferability and recognition of peripheral intravenous cannulation skills across the health service.



10 Skill Pathway

Nurses and midwives must first successfully complete an approved education programme on the Management and Administration of Intravenous Medication, before embarking on the peripheral intravenous cannulation programme. The skill pathway outlines the steps involved in order for the nurse or midwife to obtain competence in undertaking the skill of peripheral intravenous cannulation.



10.1 Ten Step Approach to the Skill Pathway

Step One Approval to Undertake Skill

Nurses and midwives must first successfully complete an approved education programme on the Management and Administration of Intravenous Medication, before embarking on the peripheral intravenous cannulation programme. Discuss with your line manager and obtain approval to undertake the programme.

Step Two Learner Handbook and Policy Documents

Obtain Learner Handbook and local policy documents from your manager or educational provider. Read and familiarise yourself with this information.

Step Three Theoretical Component of the Programme

Undertake the Theoretical Component of the programme. This is provided as an online eLearning module. The module can be accessed through www.hseland.ie and consists of an introduction to the theory and practice of peripheral intravenous cannulation with practical demonstrations on video. The module contains a self assessment section to ensure learning has taken place on the key aspects of the module. A pass in the self assessment is required in order to proceed to the next step. The programme may also be delivered by your local Centre of Nursing/ Midwifery/ Children's Nurse Education, practice development unit or designated educational provider.

Step Four Clinical Skills Assessment

Upon completion of the theoretical component, proceed to undertake the clinical knowledge theoretical assessment, by booking a place through the Centre of Nursing/Midwifery/Children's Nurse Education, practice development unit or designated educational provider. This is a multiple choice examination, which takes approximately one hour.

Step Five Clinical Skills Demonstration and Practice Session

Undertake a Clinical Skills Demonstration and Practice Session to practice the skill of peripheral intravenous cannulation in an educational environment. This can be arranged by booking a place through the local Centre of Nursing/Midwifery/Children's Nurse Education, practice development unit or designated educational provider.

Step Six Clinical Practice Supervisor/Assessor

In conjunction with your clinical nurse/midwife manager, identify a clinical practice supervisor/assessor who will support you to undertake the required number of supervised clinical practice assessments, applicable to your area of clinical practice.



Step Seven Clinical Supervised Practice

In conjunction with your clinical practice supervisor/ assessor, a pre-defined number of practice assessments (six to ten) must be undertaken. Your clinical practice supervisor/ assessor must assess each session and complete the Record of Supervised Practice Assessments Form (appendix i) by grading your skills in fourteen areas and signing the form for each assessment. You are graded according to your skills in:

- Correct identification of patient
- Appropriate patient preparation, communication and consent procedures
- Choice and handling of equipment confidently and correctly
- Consideration of personal safety and that of others, taking into consideration clinical holding and distraction techniques that may be required
- Correct identification of suitable vein
- Appropriate venous dilation methods
- Provision of local anaesthesia as required (as per local organisational policy)
- Cannula insertion
- Securing and anchoring of cannula safely and effectively
- Appropriate troubleshooting techniques
- Appropriate technique followed throughout
- Management of equipment
- Disposal of sharps safely
- Completion of appropriate documentation (as per local organisational policy)

Local organisational policy identifies the number of supervised clinical practice assessments required for peripheral intravenous cannulation. For example, a children's nurse may be required to undergo additional supervised clinical practice assessments in order to achieve competence for:

- Neonates
- 0-1 year olds
- 1-5 year olds
- 5 year olds and above.

Step Eight Competence Assessment

This is an assessment of clinical competence to undertake the skill of peripheral intravenous cannulation. This must be undertaken within twelve weeks of the theoretical component. When the nurse or midwife is deemed ready for the clinical competence assessment, they must:

- Agree a date for the clinical competence assessment with their clinical practice supervisor/assessor
- Undertake the peripheral intravenous cannulation competence assessment. If successful, the Final Competence Assessment Form (appendix i) is completed by the clinical practice supervisor/assessor. The signed Final Competence Assessment Form is returned to the line manager who completes the Skills Completion Checklist (appendix iii). If unsuccessful, additional supervised practice assessments should be arranged and a date rescheduled for the final competence assessment.

Step Nine Record of Competence Achievement

The National Standardised Certificate of Competence Achievement is issued by your local Centre of Nursing/Midwifery/Children's Nurse Education, practice development unit or designated educational provider, on receipt of the Final Competence Assessment Form and Skill Completion Checklist.

Step Ten Maintenance of Competence

Upon completion of the skill pathway, each nurse or midwife should have the knowledge, skills and competence to practice the skill of peripheral intravenous cannulation across healthcare organisations, within the HSE. In order to maintain competence, it is recommended that up to ten peripheral intravenous cannulation procedures per month are required (or as predefined in local organisational policy). It is also important to keep up to date with changes in best practice, local policy and to keep abreast of equipment utilised for the procedure.



References

- An Bord Altranais (2000) Scope of Nursing and Midwifery Practice Framework. An Bord Altranais: Dublin.
- An Bord Altranais (2000) The Code of Professional Conduct for each Nurse and Midwife. An Bord Altranais: Dublin.
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- Dougherty, L. & Lister, S. (2009) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 7th Ed. Wiley Blackwell Pub:Chicester
- HSE (2007) Acute Hospital Bed Review: A Review of Acute Hospital Bed Use in Hospitals in the Republic of Ireland with an Emergency Department HSE: Dublin
- Health Service Executive (2008) A Practical Guide to Immunisations. HSE: Dublin
- Jamieson, E. et al (1988) Guideline for Clinical Nursing Practice. Churchill Livingstone: London.
- Shields, L., Pratt, J. and Hunter, J. (2006) Family-Centred Care: A Review of Qualitative Studies. Journal of Clinical Nursing, 15: 1317 – 1323

Resources

- An Bord Altranais (2002) Recording Clinical Practice Guidance to Nurses and Midwives An Bord Altranais: Dublin
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes, 3rd Ed. An Bord Altranais: Dublin. <http://www.nursingboard.ie/en/publications/current.aspx?page=1>
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes, 3rd Ed. Dublin: An Bord Altranais. <http://www.nursingboard.ie/en/publications/current.aspx?page=1>
- An Bord Altranais (2007) Guidance to Nurses and Midwives on Medication Management An Bord Altranais: Dublin.
- An Bord Altranais (2007) Requirements and Standards for Post-Registration Nursing and Midwifery Education Programmes – Incorporating the National Framework of Qualifications, 1st Ed. An Bord Altranais: Dublin: <http://www.nursingboard.ie/>
- An Bord Altranais (2007) Requirements and Standards for Post-Registration and Continuing Competence Nursing and Midwifery Education Programmes-Incorporating the National Framework of Qualifications. An Bord Altranais: Dublin
- Ayliffe, G., A., J., Fraise, A., P., Geddes, A., M. and Mitchel, K. (2000) Control of Hospital Infection, A Practical Handbook, 4th ed. Arnold: London
- Bowden, V., R. & Greenberg, C., S (2007) Pediatric Nursing Procedures, 2nd edn Lippincott Williams & Wilkins: New York.
- Brooker, C. (2003) Human Structure & Function, Mosby: London.
- Broome, M., E. (2000) Helping Parents Support Their Child in Pain. Pediatric Nursing 26(3), 315-317.
- Camp-Sorrell, D. (1998). Developing Extravasation Protocols and Monitoring Outcomes. J Intran Nurs, 21(4) 232-238.
- Catudal, J., (1999) Pediatric IV therapy: Actual Practice. J Vascular Access Devices 4 (1), 27-29.
- Chamley, C., A., Carson P., Randall, D. and Sandwell, M. (2005) Developmental Anatomy and Physiology of Children, A Practical Approach. Churchill Livingstone: London.
- Collins, M., Dougherty, L., de Verteuil, A. and Morris, W. (2005) A Structured Learning Programme for Venepuncture and Cannulation. Nursing Standard, 20(26), pp. 34--43.
- Department of Health and Children (1999) Children First National Guidelines for the Protection and Welfare of Children, Department of Health: Dublin
- Department of Health and Children (2005) The Prevention of Transmission of Blood-Borne Diseases in the Health-Care Setting: <http://www.dohc.ie/>
- Dougherty, L. (2008) Peripheral Cannulation. Nursing Standard, 22 (52), 49-56.
- Dougherty, L., and Lamb, J. (2008) Intravenous Therapy in Nursing Practice, (2nd edn) Churchill Livingstone: London
- Dougherty, L., and Lister, S. (2004) The Royal Marsden Hospital Manual of Clinical Nursing Procedures, 6th edition. Blackwell Publishing: Oxford.
- Franurik, D., Koh, J., L., and Schmitz, M., L. (2000) Distraction Techniques with EMLA: Effects on IV Insertion Pain and Distress in Children. Children's Healthcare, 29 (2), 87-101.



- Garros, D., King, J., Brady-Fryer, B. & Klassen, T., P. (2003) Strangulation with Intravenous Tubing: A Previously Undescribed Adverse Advent in Children. Pediatrics. 111(6), 732-7734.
- Glasper, A., & Richardson, J. (2006) A Textbook of Children's and Young Peoples Nursing. Churchill Livingstone: London.
- Golder, M., Chan, C. L., O Shea, S., Corbett, K., Chrvstie, I., L. and French, G. (2000) Potential Risk of Cross Infection During Peripheral Venous Access by Contamination of Tourniquets. The Lancet, 355, (9197), 44 (111).
- Hankins, J., Walsman Lonsway, R., A., Hedrick, C. & Perdue, M. (2001) Infusion Therapy in Clinical Practice. 2nd ed. WB Saunders Company: Philadelphia.
- Health Information and Quality Authority (2008) National Hygiene Services Quality Review Standards and Criteria: <http://www.higa.ie/>
- Health Information and Quality Authority (2009) National Standards for the Prevention and Control of Health Care Associated Infections. HIQA: Dublin
- Health Service Executive. (2001) Health Protection Surveillance Centre. The Strategy for the Control of Antimicrobial Resistance in Ireland: <http://www.ndsc.ie/>
- Health Service Executive (2005) Strategy for the Control of Antimicrobial Resistance in Ireland- Guidelines for Hand Hygiene in Irish Health Care Settings. HSE: Dublin. <http://www.hpsc.ie/>
- Health Service Executive (2005) The Control and Prevention of MRSA in Hospitals and in the Community: A Strategy for the Control of Antimicrobial Resistance in Ireland. Health Protection Surveillance Centre. <http://www.ndsc.ie/>
- Health Service Executive (2007) Infection Control Action Plan. http://www.hse.ie/eng/newsmedia/2007_Archive/June_2007_/HSE_committed_to_tackling_MRSA.html
- Health Service Executive (2007) Quality & Risk Management Standards.
- Health Service Executive (2007) Risk Management in the HSE: An Information Handbook
- Health Service Executive (2007) The Prevention and Control of Health Care Associated Infections in Ireland. HSE: Dublin
- Health Service Executive (2008) Findings from the Survey of Venepuncture and Intravenous Cannulation Education and Training Among Nurses and Midwives Employed within the Republic of Ireland. Dublin: Stationary Office.
- Health Service Executive (2009) Infection Control E Learning Module: <http://www.hseland.ie>
- Health Service Executive South Eastern Area (2007) Guidelines for Nursing/Midwifery Staff Undertaking Peripheral Intravenous Cannulation and/or Venepuncture in Children. Health Service Executive South Eastern Area.
- Hockenberry, M., J. & Wong, D., L. (2003) Wong's Nursing Care of Infants and Children. 7th ed. Mosby: Philadelphia
- Ingram, P. & Lavery, I. (2007) Peripheral Intravenous Cannulation: Safe Insertion and Removal Technique. Nursing Standard. 22 (1), 44-50.
- Intravenous Nursing Society (2000) Infusion Nursing: Standards of Practice. J. Intravenous Nurs. 23 (65):S1-S87.
- INS (2008) Infusion Therapy in Clinical Practice. Infusion Nurses' Society (INS) :Massachusetts. <http://www.ins1.org>
- Jackson, A. (1998) A Battle in Vein: Infusion Phlebitis, Nursing Times 94 (4), 66-71.

- Kleiber, C., Sorenson, M., Whiteside, K., Gronstal, A. & Tannous, R. (2002) Topical Anesthetics for Intravenous Insertion in Children: A Randomized Equivalency Study. Pediatrics. 110 (4) 758-770.
- Krechel, S., W., & Bildner, J. (1995). CRIES: A New Neonatal Postoperative Pain Measurement Score– Initial Testing of Validity and Reliability. Paediatric Anaesthesia 5: 53-61.
- Lavery, I. (2003) Peripheral Intravenous Cannulation and Patient Consent. Nursing Standard. 17 (28) 40-42.
- Lillystone, R. (1999) Easing the Pain. Nursing Standard. 19 (41), 67-68.
- Malarkey, L., and McMorrow, M., E. (1998) Laboratory & Diagnostic Tests, A Pocket Guide. Saunders: Philadelphia.
- Masoorli, S. (2002) Catheter Related Nerve Injury: Inherent Risk or Avoidable Outcome? Journal of Vascular Access Devices. 7 (4) 49.
- Millam, D., A. (2003) On the Road to Successful IV Starts. Nursing (5)
- Montgomery, L., A, Hanrahan, K., Kottman, K., Otto, A., Barrett, T., Hermiston, B., (1999). Guideline for IV Infiltrations in Pediatric Patients. Pediatr Nurs 25 (2), 167-180.
- Moore, K., L., and Dalley, A., F. (2009) Clinically Oriented Anatomy. 6th Edn Lippincott Williams and Wilkins: New York.
- National Health Service Education for Scotland (2004) Transferring the Skills: A Quality Assurance Framework for Venepuncture, Cannulation and Intravenous Therapy: <http://www.nes.scot.nhs.uk/>
- National Health Service of United Kingdom, National Patient Safety Agency: <http://www.npsa.nhs.uk/>
- National Health Service of United Kingdom, The Health and Safety Executive: <http://www.hse.gov.uk/>
- National Health Service of United Kingdom, The Medicines and Healthcare Products Regulatory Agency: <http://www.mhra.gov.uk/>.
- National Institute of Health Pain Consortium (2007) Pain Intensity Scales. www.painconsortium.nih.gov/pain_scales/index.html
- Nentwich, P., F. (1990) Intravenous Therapy. Jones and Barlett: Massachusetts.
- Philips, L. (2005) Manual of IV Therapeutics, 4th Ed F. A. Davis Philadelphia.
- Royal College of Nursing (2003) Restraining, Holding Still and Containing Children and Young People (Guidance for Nursing Staff). Royal College of Nursing: London.
- Royal College of Nursing (2005) Competencies: An Education and Training Competence Framework for Peripheral Venous Cannulation in Children and Young People: Royal College of Nursing: London. <http://www.rcn.org.uk/>
- Royal College of Nursing (2005) Informed Consent in Health and Social Care Research. Royal College of Nursing: London.
- Scales, K. (2005) Vascular Access: A Guide to Peripheral Venous Cannulation. Nursing Standard. 19 (49) pp. 48-52
- Tortora, G., L. and Grabowaki, S., R. (2003) Principles of Anatomy and Physiology. Harper Collins College Publications: New York
- Weinstein, S., M (2008) Plumer's Principles and Practice of Intravenous Therapy. 8th Ed. J.B. Lippincott Company: Philadelphia



Peripheral Intravenous Cannulation – Record of Supervised Practice Assessments

The purpose of this document is to provide evidence of supervised practice and demonstrate competence progression under supervision.

Name & (Initials)											
Job Title											
Organisation											
Department											
Clinical Skill	Peripheral Intravenous Cannulation	Date Started:				Date Completed:					
Clinical Assessor Name & (Initials)	1.		2.								
Clinical Assessor Name & (Initials)	3.		4.								
Clinical Assessor Name & (Initials)	5.		6.								
The nurse/midwife must be able to discuss the rationale for each of the actions and demonstrate competence in the practical application of these skills as applicable											
Skill Required		10 SELF ASSESSMENTS									
		Achieved = √					Not Achieved =0				
		1	2	3	4	5	6	7	8	9	10
A	Correct identification of patient										
B	Appropriate patient preparation and communication										
C	Chooses and handles equipment confidently and correctly										
D	Considers personal safety and that of others										
E	Correct identification of suitable vein										
F	Appropriate venous dilation methods										
G	Provision of local anaesthesia as required (as per health care organisation policy)										
H	Cannula insertion										
I	Secure and anchor cannula safely and effectively										
J	Appropriate troubleshooting techniques										
K	Appropriate technique followed throughout										
L	Management of equipment										
M	Disposal of sharps safely										
N	Completes documentation (as per health care organisation policy)										
Initial of Clinical Assessor:											
Initial of Nurse/Midwife											
Date:											

The number of these supervisions will vary between individuals so please copy this form if you require more supervised assessment

Peripheral Intravenous Cannulation – Final Competence Assessment

Final Assessment

Essential skills, demonstrating competence for independent practice.

Name			
Job Title			
Organisation			
Department			
Clinical Skill	Peripheral Intravenous Cannulation		
Clinical Assessor			
The nurse or midwife demonstrated:		Pass	Refer
1	Appropriate communication with the patient throughout		
2	Safe technique throughout the whole procedure		
3	Familiarity with equipment		
4	Aseptic technique throughout		
5	Correct positioning of patient and preparation of environment		
6	Chooses appropriate vein site and equipment for venepuncture		
7	Provides local anaesthesia (as per health care organisation policy)		
8	Completes venepuncture procedure correctly and safely (as per health care organisation policy)		
9	Disposes of sharps and equipment correctly and safely		
10	Completes documentation in line with local health care organisation policy.		
Outcome (tick ✓)		Pass <input type="checkbox"/>	Refer <input type="checkbox"/>

OUTCOME AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:
Note of action if referred for further assessment:		
ACTION PLAN AGREED		
Date	Nurse / Midwife:	Clinical Assessor:
	Sign:	Sign:
	Print:	Print:



Peripheral Intravenous Cannulation Skill Completion Checklist

Name			
Job Title			
Organisation			
Department/Ward/Unit			
Clinical Skill	Peripheral Intravenous Cannulation		
Clinical Assessor			
Date Programme Commenced (must be completed within 3 months)			
Date Programme Completed			
The nurse or midwife will be able to discuss the rationale for each of the following actions and demonstrate competence in the practical application of peripheral intravenous cannulation skills, in line with the Scope of Nursing and Midwifery Practice Framework (An Bord Altranais 2000)			
	Actions and skills required	Achieved	Date
1	Preliminary discussion with line manager and be approved to undertake the peripheral intravenous cannulation skill pathway		
2	Have undertaken an approved Intravenous Fluids/Drug Administration & Management Programme.		
3	Read "Name of Organisation- Peripheral Intravenous Cannulation Policy"		
4	Read the "Code of Professional Conduct" and the "Scope of Nursing and Midwifery Practice Framework" (An Bord Altranais 2000)		
5	Completed the HSE eLearning Module of the blended learning education programme or attended approved theoretical programme provided by the Name of Organisation		
6	Successfully completed the HSE Clinical Knowledge Theoretical Assessment or its equivalent		
7	Attended a skills demonstration and practice session and has become familiar with and practiced with equipment used in Name of Organisation		
8	Has been deemed suitable to proceed to supervised practice by educator		
9	Completed and recorded 6-10 supervised practice assessments		
10	Successfully completed the Final Competence Assessment and has been deemed competent by the Clinical Assessor for independent practice in Name of Organisation		
Competence agreed for Peripheral Intravenous Cannulation I agree to maintain my clinical competence in peripheral intravenous cannulation in line with the Scope of Nursing and Midwifery Practice Framework (An Bord Altranais 2000) (recommend performing 10 cannulation procedures per month)			
Date	Nurse/Midwife	Clinical Assessor:	
	Sign:	Sign:	
	Print:	Print:	

Clinical Nurse/Midwife Manager:

I am satisfied that the above named person has attended the necessary education & training and has completed the related competence programme.

Sign Print Date

*Send Copy of completed checklist to Centre of Nursing/Midwifery/Children's Nurse Education (or other education provider) to receive your Record of Competence Achievement and keep a copy for your own records.

Appendix xii

National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Adults



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1.0 Introduction

1.1 Policy Statement

It is the policy of the HSE that registered nurses and midwives undertaking venepuncture must have successfully achieved competence having completed an education programme that is compliant with the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010). In addition, nurses and midwives undertaking venepuncture will do so in accordance with the procedural elements as outlined in this policy.

1.2 Purpose

The purpose of this policy is to:

- Outline the roles and responsibilities of the clinical line manager and the nurse or midwife undertaking the skill of venepuncture
- Set out procedures based on best evidence, aligned with the national HSE standardised approach, which safeguard the patient and guide the nurse or midwife in the performance of venepuncture
- Aid in the preparation and support of patients and their families while undergoing venepuncture

1.3 Scope

This policy applies to all nurses and midwives, who have successfully completed the required education, training and competence assessment to carry out venepuncture.

1.4 Disclaimer

The information contained within this policy is the most accurate and up to date, at date of approval. The policy contains a procedural guideline and it is the responsibility of the local organisation, to update this guideline, according to best practice.



2.0 Glossary of Terms

Aseptic Technique:

Aseptic Technique is implemented during any invasive procedure that bypasses the body's natural defences e.g. the skin or when handling equipment such as peripheral intravenous cannulae. This technique is used to reduce the potential problem of introducing pathogenic micro organisms into the body when the integrity and /or effectiveness of the natural body defences has been reduced.

(Jamieson et al., 1988, Dougherty and Lister, 2009)

Assessor:

An assessor is an identified nurse or midwife, who has undertaken a similar educational and clinical programme and is a competent expert practitioner. It is recommended that nurses and midwives develop their competence within specific disciplines, according to their practice.

Competence:

The ability of the registered nurse or midwife to practice safely and effectively fulfilling his/her professional responsibility within their scope of practice.

(An Bord Altranais, 2000)

Family Centred

Care:

A way of caring for patients and their families within health services which ensures that care is planned around the whole family, not just the individual patient and in which all the family members are recognised as care recipients.

(Shields et al., 2006)

Nurse:	<p>A nurse is a person registered in the Live Register of Nurses as provided for in Section 27 of the Nurses Act 1985 and includes a midwife and nursing includes midwifery – Code of Professional Conduct for each Nurse and Midwife.</p> <p>(An Bord Altranais, 2000)</p>
Order of Draw:	<p>The order of blood draw refers to the sequence in which blood collection bottles should be filled.</p> <p>(WHO, 2002)</p>
Safety Blood Collection Systems:	<p>Safety blood collection systems are single use blood collection systems that enhance safer venepuncture. Equipment utilised for the procedure is approved for use in this organisation.</p>
Venepuncture:	<p>Venepuncture is the introduction of a needle into a vein to obtain a blood sample for haematological, biochemical or bacteriological analysis (also known as phlebotomy, venesection, drawing/ taking blood).</p> <p>(Lavery & Ingram, 2005)</p>



3.0 Roles and Responsibilities

3.1 Role and Responsibility of the Clinical Line Manager

It is the responsibility of the clinical nurse or midwife manager or line manager to ensure that nurses and midwives, who are undertaking venepuncture fulfil the following criteria. Nurses and midwives must:

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais
- Be employed in the HSE
- Be approved by their Clinical Nurse or Midwife Manager as an appropriate person to expand their practice, to include venepuncture
- Be employed in an area where venepuncture is required to enhance service provision
- Successfully complete the educational preparation and competence assessment provided by this organisation, that is compliant with or equivalent to that outlined in the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010)

3.2 Role and Responsibility of the Nurse and Midwife

It is the responsibility of each registered nurse and midwife to:

- Work within their Scope of Practice -Scope of Practice Framework for Nurses and Midwives, (An Bord Altranais, 2000)
- Comply with local organisational venepuncture policy and procedures therein, when undertaking venepuncture
- Become competent in the skill of venepuncture and:
 - i. the equipment specific to the procedure
 - ii. the use of blood collection systems used in this organisation
 - iii. the relevant blood collection bottles and related blood tests used in their area. The colours of these will vary depending on the system used in the organisation and /or depending on the laboratory processing the sample
- Be familiar and comply with the organisation's infection prevention and control, health and safety procedures and risk management policies as they apply to venepuncture

4.0 Procedural Guideline for the Venepuncture Procedure

4.1 Indications for the Venepuncture Procedure

Venepuncture is the procedure of entering a vein with a needle and is undertaken to:

- Obtain a blood sample for diagnostic purposes using haematological, biochemical and bacteriological analysis
- Monitor levels of blood components.

4.2 Considerations When Undertaking the Venepuncture Procedure

Venepuncture is one of the most common invasive procedures and can be traumatic for the patient and family. It should only be ordered when necessary. A clinical assessment should be undertaken prior to the venepuncture procedure.

4.3 Preparation for Procedure

4.3.1 Informed Consent

Informed consent should be obtained from the patient or legal guardian prior to the procedure and as per local organisational policy. Informed consent is obtained from the legal guardian or next of kin if the patient does not have the cognitive ability to understand or make an informed decision

If the patient or family do not speak English, arrangements must be made to ensure the procedure is understood and the consent is valid. The patient should be given adequate information and explanation. Identify preferences in relation to the venepuncture site should be discussed (Dominant hand, clothing worn etc).

4.3.2 Topical Anaesthetic Agents

Topical anaesthetic agents such as Ametop Gel, EMLA Cream and Ethyl Chloride Spray produce numbness of the skin and have been proven to reduce the pain experienced during the venepuncture procedure (Dougherty, 2008). The need for local anaesthetic agents prior to the procedure should be considered on an individual basis (Scales, 2005). Details of topical anaesthetic agents suitable for adults are:

- **Ametop Gel:** Consists of Amethocaine 4% Gel. Application Time: Minimum of 30 minutes prior to procedure. Side Effects: Redness, swelling and itchiness
- **EMLA Cream** (Eutectic mixture of local anaesthetics). Consists of: Lidocaine and Prilocaine 5% Cream. Application Time: Minimum of one hour prior to procedure. Side Effects: Redness, swelling and itchiness



- **Ethyl Chloride Spray:** Consists of: Ethyl Chloride Spray. Indications: Use if allergic to or has poor tolerance or anxiety relating to other agents or occlusive dressings. Suitable in emergency situations due to its immediate action. Application Time: Immediate. Side Effects are extremely rare and include: cutaneous sensitisation, pigmentation. Overexposure can lead to headaches, dizziness, vomiting, loss of co-ordination and disorientation.

Topical anaesthetic agents should be applied to a limited number of locations only, as excessive use of agent can be harmful when absorbed (Scales, 2005 and Franurik et al., 2000). Topical anaesthetic agents must be prescribed on an individual basis and be used according to manufacturer's instructions.

4.4 Vein Selection in Adults

Choosing the correct vein is important. When selecting the appropriate site of vein for venepuncture, it is best practice to begin in the most distal aspect of the vein. This allows for further attempts above the selected vein which will not have been impeded. When cannulating adults, the specific advantages and disadvantages of potential venepuncture sites must be considered. These are outlined below:

Median Cubital Vein in the Antecubital Fossa	<p>Advantages</p> <ul style="list-style-type: none"> • Clearly visible and accessible • Deep veins with rich blood supply • Easy to palpate • Well supported by subcutaneous tissue (prevents vein rolling under the needle) • Accessible in thin people <p>Disadvantages</p> <ul style="list-style-type: none"> • Brachial artery and radial nerve in close proximity • Difficult to locate in child with increased subcutaneous fat
Cephalic and Basilic Veins in the Forearm	<p>Advantages</p> <ul style="list-style-type: none"> • Easy to locate • Larger veins <p>Disadvantages</p> <ul style="list-style-type: none"> • Cannot be used if site is used for arteriovenous fistula • Not well supported by subcutaneous tissue (vein can roll from needle) • Brachial artery close to both veins • Median nerve close to basilic vein • Radial nerve close to cephalic vein
Metacarpal Veins in the Dorsal Venous Network	<p>Advantages</p> <ul style="list-style-type: none"> • Easily accessible, easily visualised and palpable • Prominent in obese patients <p>Disadvantages</p> <ul style="list-style-type: none"> • Difficult to secure • Skin can be delicate and subcutaneous tissue is diminished (small veins may only offer small volumes of blood) • Only suitable for small blood collection set (23G Butterfly system)

4.5 Clinical Assessment

A clinical assessment should be carried out by the nurse or midwife prior to the venepuncture procedure. Consideration must be given to the patient's cognitive and mobility needs when selecting a site. A Four Step Approach is outlined as follows:

Four Step Approach – Clinical Assessment

Check

- The indication for venepuncture to determine equipment and specific bottles to use
- If the patient has fasted as required for specific tests
- The clinical condition (acute/ chronic/emergency) of the patient
- Location and length of the vein
- Condition of the vein (visual and palpation)
- Area is warm prior to the venepuncture procedure (veins constrict if cold, making the procedure more difficult)
- Allergies to topical anaesthetic agents or plasters
- For needle phobia
- Previous history of difficult venepuncture procedures
- Increased amounts of subcutaneous fat
- For history of blood borne viruses, bleeding disorders or if receiving anticoagulation therapy

Choose

- Most distal aspect of the vein
- Non dominant hand
- Correct location, avoiding arteries and nerves
- Appropriate equipment to undertake procedure
- Appropriate topical anaesthetic agent

Avoid

- Hard, sclerosed, fibrosed, knotty, thrombosed veins or previous venepuncture sites
- Sites with intravenous infusions in situ
- Sites that may require peripheral intravenous central catheter (PICC) insertion or arterial monitoring
- Valves in the vein (if visible or palpable)
- Duplication of blood orders
- Veins suitable for peripheral intravenous cannulation and treatment if the patient requires repeated treatments such as chemotherapy.

Do Not Use

- Arm with obvious infection or bruising
- Arm with a fracture
- Arm with an arteriovenous (AV) fistula
- Arm affected by a cerebro vascular accident
- Arm affected by lymphoedema or where axillary node clearance has taken place, for example post mastectomy



4.6 Equipment

The equipment required for the venepuncture procedure is outlined in each of the venepuncture procedures in appendix i. Equipment required should be based on the assessment of the patient and the specific blood tests required.

Venepuncture Procedure –Adult- List of Equipment

- | | |
|--|--|
| <ul style="list-style-type: none"> • A clean clinical tray • Small kidney dish for Healthcare Risk Waste (placed in tray) • Sharps container (large enough to accommodate the blood collection system) • Disposable non sterile sheet – (optional in case of blood spillage) • *Personal Protective Equipment (e.g., 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield) • Skin disinfectant – 70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available • Alcohol hand rub/gel | <ul style="list-style-type: none"> • Clean tourniquet • Topical anaesthetic agent if prescribed • **Required blood collection set • **Required blood specimen bottles • Blood Requisition Forms (fully completed with infant details) • A biohazard bag for transport of specimens • Sterile gauze – (to apply pressure and absorb blood spillages) • Sterile plaster/band aid |
|--|--|

*As per Standard Precautions, the use of a plastic apron and/or face protection should be assessed by each Health Care Worker based on the risk of blood splashing or spraying during the procedure.

**Range and type of equipment may vary depending on local organisational policy

4.6.1 Types of Safety Blood Collection Systems

The nurse and midwife should be familiar with the types of safety blood collection systems used in their organisation, which are outlined below.

Butterfly Safety Blood Collection Set	
The Butterfly Safety Blood Collection Set allows for blood aspiration from patients with very fine and fragile veins. The butterfly safety blood collection set can be used as an aspiration method or vacuum method.	It is best used in the dorsal venous network of the hand and the cephalic and basilic veins of the forearm. This method provides the best option for patients with problematic, fragile and delicate veins.
Monovette System	
The Monovette System can be used as an aspiration method and/or a vacuum method. Components in the system include: <ul style="list-style-type: none">• Multi-sampling needles with pre-assembled holders• Needle protection devices• Series of specific bottles with caps of various colours which are unique to this system (The colours indicate the type of additives).	This blood collection system is suitable for all veins for venepuncture. It is also suitable for fragile veins.
Vacutainer and Vacuette Safety Blood Collection Systems	
The Vacutainer and Vacuette Safety Blood Collection Systems use the vacuum method. This method allows for the automatic transfer of blood into the blood specimen bottles via a vacuum. There are a number of providers who offer a range of products that utilise the vacuum method and these products vary across organisations.	It is recommended for the prominent veins in the antecubital fossa area (median cubital vein). Use with caution on fragile veins as it may cause them to collapse.

4.6.2 Types of Blood Collection Bottles and Tubes

The blood collection bottles and tubes will vary depending on the safety blood collection system utilised. The nurse or midwife should be familiar with the types of blood collection bottles and tubes used in this organisation.

4.7 Recommended Order of Draw

The order of blood draw is the sequence in which blood collection bottles should be filled. The needle which pierces the bottle can carry additives from one bottle into the next, and so the sequence of draw is standardised so that any cross-contamination of additives will not affect laboratory results.

The general principles applied to the order of blood draw are:

- 1st: Samples – no additives
- 2nd: Samples – anti coagulants
- 3rd: Samples – additives (WHO, 2002)



4.8 Procedure

The venepuncture procedure follows aseptic principles, using a non touch technique. **Two** attempts **ONLY** should be made at the venepuncture cannulation. If unsuccessful refer to another practitioner. Single use closed safety blood collection systems (sanctioned for use locally) are recommended for use in accordance with manufacturer's instructions. The venepuncture procedure for adults is specified in appendix i.

4.9 Management of Complications

Potential problems such as patient fear and anxiety, inability to draw blood or cessation of blood flow may arise and it is important to know how these may be overcome. Complications such as haematoma, phlebitis, nerve injury, arterial puncture, venous spasm and/or needle stick injury can occur and it is important that the nurse or midwife is able to recognise treat and /or prevent them. It is critical for the nurse to detect and prevent complications arising. It is especially important for patient's who may not be able to verbalise pain. Please see appendix ii for more information on complications.

5.0 Documentation

The nurse or midwife must be familiar with the documentation required for the venepuncture procedure. A requisition form must accompany blood samples submitted to the laboratory. The requisition form must contain the proper information in order to process the specimen.

The essential elements of the requisition form include the:

- Surname, first name, and middle initial
- Date of birth and sex
- Identification number
- Diagnosis or symptoms
- Complete name of healthcare professional requesting test
- Date of venepuncture procedure
- Indication of the blood test(s) requested
- Location (for example, ward, department, address)

6.0 Implementation Plan

The Director of Nursing and Midwifery is responsible for the dissemination, implementation and ongoing evaluation and audit of this policy within this organisation.

7.0 Evaluation and Audit

Evaluation will include a

- Mechanism for recording, reviewing and acting on adverse venepuncture incidents
- System for maintaining practitioner competence
- Method for identifying further training needs



References

- An Bord Altranais (2000) Scope of Nursing and Midwifery Practice Framework. An Bord Altranais: Dublin.
- An Bord Altranais (2000) The Code of Professional Conduct for each Nurse and Midwife. An Bord Altranais: Dublin.
- Dougherty, L. (2008) Peripheral Cannulation. Nursing Standard. 22 (52), 49-56.
- Dougherty, L. & Lister, S. (2009) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 7th Ed. Wiley Blackwell Pub: Chichester.
- Franurik, D., Koh, J.,L., and Schmitz, M.,L. (2000) Distraction Techniques with EMLA: Effects on IV Insertion Pain and Distress in Children. Children's Healthcare. 29 (2), 87-101.
- Health Service Executive (2008) A Practical Guide to Immunisations. HSE: Dublin.
- Health Service Executive (2010) A Guiding Framework for Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives. HSE: Dublin
- Jamieson, E. et al (1988) Guideline for Clinical Nursing Practice. Churchill Livingstone: London:
- Lavery, I., and Ingram, P. (2005) Venepuncture: Best Practice. Nursing Standard. 19 (49) pp 55-65.
- Scales, K. (2005) Vascular Access: A Guide to Peripheral Venous Cannulation. Nursing Standard. 19 (49) pp. 48-52
- Shields, L., Pratt, J. and Hunter, J. (2006) Family-Centred Care: A Review of Qualitative Studies. Journal of Clinical Nursing, 15: 1317 – 1323
- World Health Organisation (2002) World Health Organisation- Collaborating Centre for Patient Safety Solutions. <http://www.ccforspatientsafety.org/>

Resources

- An Bord Altranais (2002) Recording Clinical Practice Guidance to Nurses and Midwives An Bord Altranais: Dublin
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. Dublin: An Bord Altranais. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2007) Requirements and Standards for Post-Registration Nursing and Midwifery Education Programmes – Incorporating the National Framework of Qualifications. 1st Ed. An Bord Altranais: Dublin: <http://www.nursingboard.ie/>
- An Bord Altranais (2007) Guidance to Nurses and Midwives on Medication Management An Bord Altranais: Dublin.
- Ayliffe, G., A., J., Fraise, A., P., Geddes, A., M. and Mitchel, K. (2000) Control of Hospital Infection, A Practical Handbook. 4th ed. Arnold: London
- Back, F., & Hughes, J. (1997) Venepuncture. Nursing Standard. 11(41), pp.49-53
- Briggs, J. (2006) Venepuncture - Acute Care. Johanna Briggs Institute. www.joannabriggs.edu.au
- Brooker, C. (2003) Human Structure & Function. Mosby: London.
- Collins, M., Dougherty, L., de Verteuil, A. and Morris, W. (2005) A Structured Learning Programme for Venepuncture and Cannulation. Nursing Standard. 20(26), pp. 34-40
- Department of Health and Children (2005) The Prevention of Transmission of Blood-Borne Diseases in the Health-Care Setting: <http://www.dohc.ie/>
- Dougherty, L., and Lister, S. (2004) The Royal Marsden Hospital Manual of Clinical Nursing Procedures, 6th edition. Blackwell Publishing: Oxford.
- Ernst, D., J. and Ernst, C. (2001) Phlebotomy for Nurses and Nursing Personnel 1st edn Healthstar Press: USA
- Health Information and Quality Authority (2009) National Standards for the Prevention and Control of Health Care Associated Infections. HIQA: Dublin
- Health Information and Quality Authority (2008) National Hygiene Services Quality Review Standards and Criteria: <http://www.hiqa.ie/>
- Health Service Executive. (2001) Health Protection Surveillance Centre. The Strategy for the Control of Antimicrobial Resistance in Ireland: <http://www.ndsc.ie/>
- Health Service Executive (2005) The Control and Prevention of MRSA in Hospitals and in the Community: A Strategy for the Control of Antimicrobial Resistance in Ireland. Health Protection Surveillance Centre. <http://www.ndsc.ie/>
- Health Service Executive (2005) Strategy for the Control of Antimicrobial Resistance in Ireland- Guidelines for Hand Hygiene in Irish Health Care Settings. HSE: Dublin. www.hpsc.ie/
- Health Service Executive (2007) Infection Control Action Plan. http://www.hse.ie/eng/newsmedia/2007_Archive/June_2007/_HSE_committed_to_tackling_MRSA.html
- Health Service Executive (2007) The Prevention and Control of Health Care Associated Infections in Ireland. HSE: Dublin



- Health Service Executive (2007) Quality & Risk Management Standards.
- Health Service Executive (2007) Risk Management in the HSE: An Information Handbook
- Health Service Executive South Eastern Area (2007) Guidelines for Nursing/Midwifery Staff Undertaking Peripheral Intravenous Cannulation and/or Venepuncture in Children. Health Service Executive South Eastern Area.
- Health Service Executive (2008) Findings from the Survey of Venepuncture and Intravenous Cannulation Education and Training Among Nurses and Midwives Employed within the Republic of Ireland. Dublin: Stationary Office.
- Health Service Executive (2009) Infection Control E Learning Module: <http://www.hseland.ie/>
- Lillystone, R. (1999) Easing the Pain. Nursing Standard. 19 (41), 67-68.
- Malarkey, L., and McMorrow, M., E. (1998) Laboratory & Diagnostic Tests, A Pocket Guide. Saunders: Philadelphia.
- Masoorli, S. (2002) Catheter Related Nerve Injury: Inherent Risk or Avoidable Outcome? Journal of Vascular Access Devices. 7 (4) 49.
- McCall, E. & Tankersley, (2003) Phlebotomy Essentials. 3rd Ed. Lippincott Williams & Wilkins: Philadelphia.
- Moore, K., L., and Dalley, A., F. (2009) Clinically Oriented Anatomy. 6th Edn Lippincott Williams and Wilkins: New York.
- National Health Service Education for Scotland (2004) Transferring the Skills: A Quality Assurance Framework for Venepuncture, Cannulation and Intravenous Therapy: <http://www.nes.scot.nhs.uk/>
- National Health Service of United Kingdom, National Patient Safety Agency: <http://www.npsa.nhs.uk/>
- National Health Service of United Kingdom, The Health and Safety Executive: <http://www.hse.gov.uk/>
- National Health Service of United Kingdom, The Medicines and Healthcare Products Regulatory Agency: <http://www.mhra.gov.uk/>.
- National Institute of Health Pain Consortium (2007) Pain Intensity Scales. www.painconsortium.nih.gov/pain_scales/index.html
- Royal College of Nursing (2005) Informed Consent in Health and Social Care Research. Royal College of Nursing: London.
- Tortora, G., L. and Grabowaki, S., R. (2003) Principles of Anatomy and Physiology. Harper Collins College Publications: New York

Appendix i

Venepuncture Procedure-Adult

The venepuncture procedure follows aseptic principles using a non touch technique.

In undertaking the procedure, it is important that only the equipment required is brought to the bedside. This is to ensure that cross-contamination does not occur, increasing the risk to other patients.

Equipment required should be based on an assessment of the patient and is as follows:

Venepuncture Procedure –Adult- List of Equipment	
<ul style="list-style-type: none"> • A clean clinical tray • Small kidney dish for Healthcare Risk Waste (placed in tray) • Sharps container (large enough to accommodate the blood collection system) • Disposable non sterile sheet – (optional in case of blood spillage) • *Personal Protective Equipment (e.g, 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield) • Skin disinfectant – 70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available • Alcohol hand rub/gel 	<ul style="list-style-type: none"> • Clean tourniquet • Topical anaesthetic agent if prescribed • **Required blood collection set • **Required blood specimen bottles • Blood Requisition Forms (fully completed with patient details) • A biohazard bag for transport of specimens • Sterile gauze – (to apply pressure and absorb blood spillages) • Sterile plaster/band aid
<p>*As per Standard Precautions, the use of a plastic apron and/or face protection should be assessed by each Health Care Worker based on the risk of blood splashing or spraying during the procedure.</p>	
<p>**Range and type of equipment may vary depending on local organisational policy</p>	



Venepuncture Procedure - Adult

Prior to Procedure

- Confirm indication for procedure, checking requisition forms for specific blood tests required
- Disinfect a clean clinical tray, using 70% alcohol or equivalent as per local guidelines
- Collect the appropriate equipment and inspect it's integrity

At the Bedside

- Carry out hand hygiene for a minimum of 15 seconds and apply apron. Locate the patient and check their identification
- Explain the procedure, check for allergies and discuss pain relief
- Obtain informed consent
- Ensure the patient is in a comfortable position
- Apply the tourniquet (5/6cms above chosen site) and tighten slowly (Do not leave on for longer than one minute)
- Ask the patient to open/close fist and keep fist closed or place arm below heart level to encourage venous filling
- Palpate the site to check for rebound elasticity -press lightly with two fingers and release
- Choose the appropriate vein

Preparation

- Decontaminate hands using alcohol hand rub/gel, allow to dry
- Apply gloves (face protection if required)
- Open the sterile gauze using the packaging as the sterile field
- Place disposable non sterile sheet under the patient's arm (optional)
- Disinfect the site using skin disinfectant (70% impregnated alcohol wipes. Disinfect in a circular motion from insertion site outwards (5-10cms diameter)
- Place the used alcohol wipes in the clinical tray ensuring not to contaminate the sterile swabs
- Allow to air dry, do not repalpate the site

Venepuncture

- Open and assemble the appropriate blood collection set
- Use your non dominant hand to achieve skin traction
- Hold the blood collection set between your thumb and index finger
- Position the needle-facing bevel upwards
- Insert the needle, directly above the vein, through the skin (angle 10-30 degrees)
- When the needle punctures the vein, observe for flashback in the chamber of the blood collection set (butterfly system only). The flashback is not evident when using a tube holder and 21/22 gauge needle (Vacuum method).
- Decrease the angle between the needle and the skin

- When using the tube holder and needle (Vacuum method), anchor the tube holder securely, using your thumb and index finger
 - o Using your thumb, gently but firmly push the blood collection bottle onto the interior needle and allow the blood collection bottle to fill to the appropriate level
- When using the monovette aspiration system, pull the plunger back slowly until the blood bottle is filled
- When using the butterfly system, draw a discard bottle first, as air from the blood collection tubing will cause underfilling of the bottle
- When multiple blood tests are required, ensure the blood tests are taken in the proper order of draw
- Loosen and release the tourniquet
- Invert bottles gently four to five times to mix appropriately, Do Not shake bottles
- Apply sterile gauze over the puncture site, and remove the needle activating the needle safety device
- Place the blood collection set into the sharps box
- Maintain digital pressure on the puncture site to prevent blood leakage
- Arm can be elevated while applying pressure to prevent haematoma formation but do not bend the arm
- Discard the blood contaminated gauze in the clinical tray
- Apply sterile dressing or plaster over the puncture site.
- Remove gloves and place in kidney dish
- Carry out effective hand hygiene for a minimum of 15 seconds (alcohol hand rub/gel)

After Care

- Inform the patient of potential complications and advise to report same
- Ensure the patient is in a comfortable position and reassure
- Document the procedure, communicate and inform relevant staff
- Apply alcohol hand rub/gel, allow to dry
- Apply gloves and ensure blood collection bottles and requisition forms are correctly labelled. New gloves are required for healthcare worker safety and to prevent any contamination of forms and bottles.
- Place all blood collection bottles and forms into the biohazard bag and send to the laboratory as per local practice
- Bring tray with used items to the dirty utility
 - o Dispose of healthcare risk and non risk waste appropriately
 - o Clean and disinfect the clinical tray
 - o Clean and disinfect reusable eye shield as per manufacturer's instructions if applicable
 - o Remove gloves and apron and carry out appropriate Hand Hygiene.



Appendix ii

Potential Complications for the Venepuncture Procedure

Venous Spasm	Venous spasm is a sudden involuntary contraction of the vein, resulting in temporary cessation of blood flow in the vein.
Cause	<ul style="list-style-type: none"> • Venous spasm is caused by fear and anxiety and is usually stimulated by cold infusates and mechanical or chemical irritation
Signs	<ul style="list-style-type: none"> • Expressions of pain • Cramping • Numbness above the venepuncture site
Prevention	<ul style="list-style-type: none"> • Explain the procedure to reduce fear and anxiety
Treatment	<ul style="list-style-type: none"> • Gently massage or warm the limb and retry • Slow down the process of venepuncture (there is no need to remove the needle) • Wait for the vein to relax before proceeding

Haematoma	Haematoma is the formation of a painful and hard swelling at the venepuncture site.
Cause	<ul style="list-style-type: none"> • Leakage of blood at the site of the venepuncture, may collect as a haematoma • Inappropriate use of a small fragile vein, or too large a needle • Excessive probing to find the vein • Removing the needle prior to releasing the tourniquet • The needle going all the way through the vein • The needle only partially entering the vein, allowing leakage
Signs	<ul style="list-style-type: none"> • Expressions of pain, loss of mobility or reluctance to move the affected limb • Swelling, discolouration or coolness of the area adjacent to the puncture site
Prevention	<ul style="list-style-type: none"> • Selection of appropriate equipment for the size of the vein • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, remove the needle and apply pressure until haemostasis has been achieved • Elevate the limb and apply a cool compress if necessary, avoiding an ice burn • Apply a pressure dressing if bleeding is persistent • Explain what has happened and request that staff are informed if the area becomes more painful as the haematoma may be pressing on a nerve • Do not reapply the tourniquet to the affected limb • Request a medical review, if required • Monitor, treat as prescribed and document in the nursing care plan • Report the occurrence of this complication, as per local organisational policy

Phlebitis	Phlebitis is an acute inflammation of the intima of a vein (Dougherty, 2008).
Cause	<ul style="list-style-type: none"> Localised infection or irritation of the vein caused by the introduction of the venepuncture needle (mechanical phlebitis)
Signs	<ul style="list-style-type: none"> Expressions of pain (verbal or non verbal) Loss of mobility or reluctance to move the affected limb Redness, inflammation, or purulent ooze at the venepuncture site
Prevention	<ul style="list-style-type: none"> Early detection is crucial, with regular monitoring required
Treatment	<ul style="list-style-type: none"> Observe and monitor the venepuncture site Assess the degree of phlebitis Take a swab of the site for culture and sensitivity Clean and apply a dressing, to the affected area and administer analgesia as prescribed Report the incident of this complication Treat as prescribed and document the care given

Nerve Injury	Nerve injury is an inadvertent injury to the nerve.
Cause	<ul style="list-style-type: none"> Inappropriate selection of the venepuncture site Poor technique
Signs	<ul style="list-style-type: none"> Pain described as an 'electrical shock' or a 'pins and needles' sensation Loss of mobility or reluctance to move the affected limb
Prevention	<ul style="list-style-type: none"> Appropriate clinical assessment Appropriate site selection Skilled technique
Treatment	<ul style="list-style-type: none"> Release the tourniquet, remove the needle and apply gentle pressure Explain and reassure the patient about what has occurred Advise that any symptoms of altered sensation may persist for a few hours Arrange a medical review, if required Monitor, treat as prescribed and document in the nursing care plan Finally, report the occurrence of this complication, as per local organisational policy



Arterial Puncture	The inadvertent puncture of the artery is another complication associated with venepuncture.
Cause	<ul style="list-style-type: none"> • Inappropriate selection of the venepuncture site • Poor technique
Signs	<ul style="list-style-type: none"> • Presence of bright red blood • Expressions of pain
Prevention	<ul style="list-style-type: none"> • Appropriate clinical assessment • Appropriate site selection • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, removing the needle immediately and apply pressure until haemostasis has been achieved • Explain and reassure regarding what has happened • Request that a member of staff is informed if bleeding recurs from the puncture site, if pain continues or if there is increasing swelling or bruising • Arrange a medical review • Monitor, treat as prescribed and document in the nursing care plan • Report the occurrence of this complication, as per local organisational policy

Needle Stick Injury	A needle stick injury (percutaneous inoculation injury) is an inadvertent puncture of the skin with a potentially contaminated needle.
Cause	<ul style="list-style-type: none"> • Inadvertent puncture of the skin during the venepuncture procedure
Signs	<ul style="list-style-type: none"> • Pain • Bleeding • A visible puncture of the skin of the nurse or midwife
Prevention	<ul style="list-style-type: none"> • The application of Infection Prevention & Control and Health and Safety Policy will support safe practice
Treatment	<ul style="list-style-type: none"> • Encourage the wound to bleed freely (do not suck the wound) • Wash the affected area with liquid soap under running water • Apply a waterproof dressing over the affected area • Report the incident to your line manager • Record the incident accordingly by completing the relevant incident form • Submit the incident form to your risk manager or line manager • For follow-up and advice, contact your Occupational Health Dept and/or the Accident and Emergency Dept as per local organisational policy

Appendix xiii

National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Venepuncture in Children



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1.0 Introduction

1.1 Policy Statement

It is the policy of the HSE that registered nurses and midwives undertaking venepuncture must have successfully achieved competence having completed an education programme that is compliant with the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010). In addition, nurses and midwives undertaking venepuncture will do so in accordance with the procedural elements as outlined in this policy.

1.2 Purpose

The purpose of this policy is to:

- Outline the roles and responsibilities of the clinical line manager and the nurse or midwife undertaking the skill of venepuncture
- Set out procedures based on best evidence, aligned with the national HSE standardised approach, which safeguard the child and guide the nurse or midwife in the performance of venepuncture
- Aid in the preparation and support of children and their families while undergoing venepuncture

1.3 Scope

This policy applies to all nurses and midwives working with children, who have successfully completed the required education, training and competence assessment to carry out venepuncture.

1.4 Disclaimer

The information contained within this policy is the most accurate and up to date, at date of approval. The policy contains a procedural guideline for local adaptation and it is the responsibility of the local organisation to update this guideline, according to best practice.



2.0 Glossary of Terms

Aseptic Technique:

Aseptic Technique is implemented during any invasive procedure that bypasses the body's natural defences e.g. the skin or when handling equipment such as peripheral intravenous cannulae. This technique is used to reduce the potential problem of introducing pathogenic micro organisms into the body when the integrity and /or effectiveness of the natural body defences has been reduced

(Jamieson et al., 1988, Dougherty and Lister, 2009)

Assessor:

An assessor is an identified nurse or midwife, who has undertaken a similar educational and clinical programme and is a competent expert practitioner. It is recommended that nurses and midwives develop their competence within specific disciplines, according to their practice.

Child:

The term child refers to neonate, infant, child and adolescent under the age of 18 years of age unless otherwise indicated.

Competence:

The ability of the registered nurse or midwife to practice safely and effectively fulfilling his/her professional responsibility within their scope of practice.

(An Bord Altranais, 2000)

Family Centred

Care:

A way of caring for patients and their families within health services which ensures that care is planned around the whole family, not just the individual patient and in which all the family members are recognised as care recipients.

(Shields et al., 2006)

Nurse:	<p>A nurse is a person registered in the Live Register of Nurses as provided for in Section 27 of the Nurses Act 1985 and includes a midwife and nursing includes midwifery - Code of Professional Conduct for each Nurse and Midwife.</p> <p>(An Bord Altranais, 2000)</p>
Order of Draw:	<p>The order of blood draw refers to the sequence in which blood collection bottles should be filled.</p> <p>(WHO, 2002)</p>
Parent or Legal Guardian:	<p>The term parent or Legal Guardian is used to describe the parent and or legal guardian of the child who is under 16 years.</p> <p>(A Practical Guide to Immunisations – HSE, 2008)</p>
Safety Blood Collection Systems:	<p>Safety blood collection systems are single use blood collection systems that enhance safer venepuncture. Equipment utilised for the procedure is approved for use in this organisation.</p>
Venepuncture:	<p>Venepuncture is the introduction of a needle into a vein to obtain a blood sample for haematological, biochemical or bacteriological analysis (also known as phlebotomy, venesection, drawing/ taking blood).</p> <p>(Lavery & Ingram, 2005)</p>



3.0 Roles and Responsibilities

3.1 Role and Responsibility of the Clinical Line Manager

It is the responsibility of the clinical nurse or midwife manager or line manager to ensure that nurses and midwives working with children who are undertaking venepuncture fulfil the following criteria. Nurses and midwives must:

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais
- Be employed by the HSE
- Be approved by their Clinical Nurse or Midwife Manager as an appropriate person to expand their practice, to include venepuncture
- Be a Registered Nurse or Midwife with at least two years post registration experience of working with children
- Be employed in an area where venepuncture is required to enhance service provision
- Successfully complete the educational preparation and competence assessment provided by this organisation, that is compliant with or equivalent to that outlined in the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (HSE, 2010)

3.2 Role and Responsibility of the Nurse and Midwife

It is the responsibility of each registered nurse and midwife to:

- Work within their Scope of Practice -Scope of Practice Framework for Nurses and Midwives, (An Bord Altranais, 2000)
- Comply with local organisational venepuncture policy and procedures therein, when undertaking venepuncture
- Become competent in the skill of venepuncture and
 - i. the equipment specific to the procedure
 - ii. the use of blood collection systems used in this organisation
 - iii. be familiar with the relevant blood collection bottles and related blood tests used
The colours of these will vary depending on the system used in the organisation and /or depending on the laboratory processing the sample
- Be familiar and comply with this organisation's infection prevention and control, health and safety procedures and risk management policies as they apply to venepuncture
- Develop competence specific to the needs of the service and patient group. The Royal College of Nursing (RCN, 2005) and the HSE recommend that registered nurses who are working with children develop their competencies within the following age groups:
 - Neonates
 - 0-1 Year Old
 - 1-5 Year Old
 - 5 Years and above

4.0 Procedural Guideline for the Venepuncture Procedure

4.1 Indications for the Venepuncture Procedure

Venepuncture is the procedure of entering a vein with a needle and is undertaken to:

- Obtain a blood sample for diagnostic purposes using haematological, biochemical and bacteriological analysis
- Monitor levels of blood components

4.2 Considerations When Undertaking the Venepuncture Procedure

Venepuncture is one of the most common invasive procedures and can be traumatic for the child and family. It should only be ordered when necessary. A clinical assessment should be undertaken prior to the venepuncture procedure. The "Children First -National Guidelines for the Protection and Welfare of Children" (DOHC, 2009) should be adhered to.

4.2.1 Iatrogenic Anaemia

Iatrogenic anaemia or iatrogenic blood loss is the regular removal of blood for testing purposes over a short period of time. It is especially important with neonates and infants as they have smaller blood volumes and may need to have blood transfusions to replace the blood removed.

Coordination is needed between physicians, nurses and midwives and laboratories to minimise duplication of blood orders and to ensure the collection of the minimum amount of blood specimens required for testing. Please refer to local organisational policy for the maximum amount of blood that can be drawn from children.

4.3 Preparation for Procedure

4.3.1 Informed Consent

Informed consent should be obtained from the child and/or parent/legal guardian prior to the procedure and as per local organisational policy. Informed consent is obtained from the parent/legal guardian or next of kin in the following circumstances:

- If a child is under the age of consent (16 years)
- If the child does not have the cognitive ability to understand or make an informed decision

If the parents and/or child do not speak English, arrangements must be made to ensure the procedure is understood and the consent is valid. The child should be involved in the decision making process and be given adequate information and explanation. Identify preferences in relation to the venepuncture site should be discussed (Dominant hand, clothing worn and thumb sucking hand etc).



4.3.2 Clinical Holding

Minimal restraint and holding should be used for the venepuncture procedure. Restraint used should be appropriate to age, cognitive ability and behavior of the child. Please refer to local organisational policies on clinical holding and the restraining of children. For further information, please read “Restraining, Holding Still and Containing Young Children” (RCN, 2003) and Department of Health & Children “Children First -National Guidelines for the Protection and Welfare of Children”(DOHC, 2009).

4.3.3 Psychological, Pharmacological and Non Pharmacological Methods of Pain Relief

Anxiety associated with venepuncture can be reduced by good communication skills, diversion, distraction and relaxation techniques. Children’s previous experiences with venepuncture should also be taken into consideration and measures applied that previously relieved pain and anxiety (Lavery, 2003). The need for local anaesthetic agents prior to the procedure should be considered on an individual basis (Scales, 2005). Please see appendix i for more information on psychological, pharmacological and non pharmacological methods of pain relief.

4.3.4 Topical Anaesthetic Agents

Topical anaesthetic agents such as Ametop Gel, EMLA Cream and Ethyl Chloride Spray produce numbness of the skin and have been proven to reduce the pain experienced during the venepuncture procedure (Dougherty, 2008). Details of topical anaesthetic agents are:

- **Ametop Gel:** Consists of Amethocaine 4% Gel. Indications: Children over 1 month. Application Time: Minimum of 30 minutes prior to procedure. Side Effects: Redness, swelling and itchiness
- **EMLA Cream** (Eutectic mixture of local anaesthetics). Consists of: Lidocaine and Prilocaine 5% Cream. Indications: Children over 1 Year. Application Time: Minimum of one hour prior to procedure. Side Effects: Redness, swelling and itchiness
- **Ethyl Chloride Spray:** Consists of: Ethyl Chloride Spray. Indications: Use if allergic to or has poor tolerance or anxiety relating to other agents or occlusive dressings. Suitable in emergency situations due to it’s immediate action. Application Time: Immediate. Side Effects are extremely rare and include: cutaneous sensitisation, pigmentation. Overexposure can lead to headaches, dizziness, vomiting, loss of co-ordination and disorientation.

Topical anaesthetic agents should be applied to a limited number of locations only, as excessive use of agent can be harmful when absorbed (Scales, 2005 and Franurik et al., 2000). Infants should be supervised when agents are applied in case of accidental ingestion. Topical anaesthetic agents must be prescribed on an individual basis and be used according to manufacturer’s instructions. Current practice does not advocate the application of any anaesthetic agents for neonates, instead sucrose/glucose may be used for babies over 32 weeks gestation as prescribed.

4.4 Vein Selection in Children

Choosing the correct vein is important. When selecting the appropriate site of vein for venepuncture, it is best practice to begin in the most distal aspect of the vein. This allows for further attempts above the selected vein which will not have been impeded. When cannulating children, the specific advantages and disadvantages of potential venepuncture sites must be considered. These are outlined below:

Median Cubital Vein in the Antecubital Fossa	<p>Advantages</p> <ul style="list-style-type: none"> • Deep veins with rich blood supply • Easy to palpate • Well supported by subcutaneous tissue (prevents vein rolling under the needle) • Accessible in thin people <p>Disadvantages</p> <ul style="list-style-type: none"> • Brachial artery and radial nerve in close proximity • Difficult to locate in child with increased subcutaneous fat
Cephalic and Basilic Veins in the Forearm	<p>Advantages</p> <ul style="list-style-type: none"> • Larger veins <p>Disadvantages</p> <ul style="list-style-type: none"> • Cannot be used if site is used for arteriovenous fistula • Not well supported by subcutaneous tissue (vein can roll from needle) • Brachial artery close to both veins • Median nerve close to basilic vein • Radial nerve close to cephalic vein
Metacarpal Veins in the Dorsal Venous Network	<p>The metacarpal veins would be the first choice for neonates and infants under 2 years as other veins may not be accessible due to higher levels of subcutaneous fat.</p> <p>Advantages</p> <ul style="list-style-type: none"> • Easily accessible, easily visualised and palpable • Prominent in obese patients <p>Disadvantages</p> <ul style="list-style-type: none"> • Difficult to secure • Skin can be delicate and subcutaneous tissue is diminished (small veins may only offer small volumes of blood) • Only suitable for small blood collection set (23G Butterfly system)

Children may also require venepuncture in either the **leg or foot**. These are not very common sites and should only be carried out by suitably trained personnel when all other sites are inaccessible.



4.5 Clinical Assessment

A clinical assessment should be carried out by the nurse or midwife prior to the venepuncture procedure. Consideration must be given to the child's developmental, cognitive and mobility needs when selecting a site. A Four Step Approach is outlined as follows:

Four Step Approach – Clinical Assessment

Check

- The indication for venepuncture to determine equipment and specific bottles to use
- If the child has fasted as required for specific tests
- The clinical condition (acute/ chronic/emergency) of the child
- Location and length of the vein
- Condition of the vein (visual and palpation)
- Area is warm prior to the venepuncture procedure (veins constrict if cold, making the procedure more difficult)
- Allergies to topical anaesthetic agents or plasters
- For needle phobia
- Previous history of difficult venepuncture procedures
- Increased amounts of subcutaneous fat
- For history of blood borne viruses, bleeding disorders or if receiving anticoagulation therapy

Choose

- Most distal aspect of the vein
- Non dominant hand
- Correct location, avoiding arteries and nerves
- Appropriate equipment to undertake procedure
- Appropriate topical anaesthetic agent

Avoid

- Hard, sclerosed, fibrosed, knotty, thrombosed veins or previous venepuncture sites
- Sites with intravenous infusions in situ
- Sites that may require peripheral intravenous central catheter (PICC) insertion or arterial monitoring
- Valves in the vein (if visible or palpable)
- Veins in the upper arm in babies less than 28 weeks as this could impede long line insertion
- Duplication of blood orders, especially in children (neonates and infants) due to smaller blood volumes
- Thumb sucking hand in children
- Lower extremities sites especially when children have just started walking
- Veins suitable for peripheral intravenous cannulation and treatment if a child requires repeated treatments such as chemotherapy

Do Not Use

- Arm with obvious infection or bruising
- Arm with a fracture
- Arm with an arteriovenous (AV) fistula
- Arm affected by a cerebro vascular accident
- Arm affected by lymphoedema

4.6 Equipment

The equipment required for the venepuncture procedure is outlined in each of the venepuncture procedures in appendix ii and iii.

Equipment required should be based on the assessment of the child and the specific blood tests required.

Venepuncture Procedure – Child – List of Equipment

- | | |
|--|---|
| <ul style="list-style-type: none">• A clean clinical tray• Sharps container (large enough to accommodate the blood collection system)• Disposable non sterile Sheet – (optional in case of blood spillage)• *Personal Protective Equipment (e.g., 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield)• Skin disinfectant (70% impregnated alcohol wipes)• Alcohol Hand rub/gel | <ul style="list-style-type: none">• Clean tourniquet• Topical anaesthetic agent if prescribed• **Required blood collection set• **Required blood specimen bottles• Blood requisition forms (fully completed with child details)• A biohazard bag for transport of specimens• Sterile gauze – (to apply pressure and absorb blood spillages)• Sterile child friendly plaster/band aid• Reward as agreed with child and parent e.g. sticker, or certificate |
|--|---|

* As per Standard Precautions the use of a plastic apron and/or face protection should be assessed by each HCW based on the risk of blood splashing or spraying during the procedure.

**Range and type of equipment may vary depending on local organisational policy.

- Venepuncture Procedure Infant – Appendix ii
- Venepuncture Procedure Child – Appendix iii



4.6.1 Types of Safety Blood Collection Systems

The nurse and midwife should be familiar with the types of safety blood collection systems used in their organisation, which are outlined below.

Butterfly Safety Blood Collection Set	
The Butterfly Safety Blood Collection Set allows for blood aspiration from patients with very fine and fragile veins. The butterfly safety blood collection set can be used as an aspiration method or vacuum method.	It is best used in the dorsal venous network of the hand and the cephalic and basilic veins of the forearm. This method provides the best option for children and especially children with problematic, fragile and delicate veins. (The vygon neonatal needle is suitable for neonatal use).
Monovette System	
<p>The Monovette System can be used as an aspiration method and/or a vacuum method.</p> <p>Components in the system include:</p> <ul style="list-style-type: none"> • Multi-sampling needles with pre-assembled holders • Needle protection devices • Series of specific bottles with caps of various colours which are unique to this system (The colours indicate the type of additives). 	This blood collection system is suitable for all veins for venepuncture. It is also suitable for fragile veins.
Vacutainer and Vacuette Safety Blood Collection Systems	
The Vacutainer and Vacuette Safety Blood Collection Systems use the vacuum method. This method allows for the automatic transfer of blood into the blood specimen bottles via a vacuum. There are a number of providers who offer a range of products that utilise the vacuum method and these products vary across organisations.	It is recommended for the prominent veins in the antecubital fossa area (median cubital vein). Use with caution on fragile veins as it may cause them to collapse.

4.6.2 Types of Blood Collection Bottles and Tubes

The blood collection bottles and tubes will vary depending on the safety blood collection system utilised. The nurse or midwife should be familiar with the types of blood collection bottles and tubes used in this organisation.

4.7 Recommended Order of Draw

The order of blood draw is the sequence in which blood collection bottles should be filled. The needle which pierces the bottle can carry additives from one bottle into the next, and so the sequence of draw is standardised so that any cross-contamination of additives will not affect laboratory results. The general principles applied to the order of blood draw are:

- 1st: Samples – no additives
- 2nd: Samples – anti coagulants
- 3rd: Samples – additives (WHO, 2002)

4.8 Procedure

The venepuncture procedure follows aseptic principles, using a non touch technique. **Two** attempts **ONLY** should be made at the venepuncture cannulation. If unsuccessful refer to another practitioner. Single use closed safety blood collection systems (sanctioned for use locally) are recommended for use in accordance with manufacturer's instructions.

The procedures for infant, child and adult are specified in appendices ii and iii.

- Venepuncture Procedure Infant – Appendix ii
- Venepuncture Procedure Child – Appendix iii

4.9 Management of Complications

Potential problems such as patient fear and anxiety, inability to draw blood or cessation of blood flow may arise and it is important to know how these may be overcome. Complications such as haematoma, phlebitis, nerve injury, arterial puncture, venous spasm and/or needle stick injury can occur and it is important that the nurse or midwife is able to recognise treat and /or prevent them. It is critical for the nurse to detect and prevent complications arising. It is especially important for children who may not be able to verbalise pain. Please see appendix iv for more information on complications.



5.0 Documentation

The nurse or midwife must be familiar with the documentation required for the venepuncture procedure. A requisition form must accompany blood samples submitted to the laboratory. The requisition form must contain the proper information in order to process the specimen.

The essential elements of the requisition form include the:

- Surname, first name, and middle initial
- Date of birth and sex
- Identification number
- Diagnosis or symptoms
- Complete name of healthcare professional requesting test
- Date of venepuncture procedure
- Indication of the blood test(s) requested
- Location (for example, ward, department, address)

6.0 Implementation Plan

The Director of Nursing and Midwifery is responsible for the dissemination, implementation and ongoing evaluation and audit of this policy within the organisation.

7.0 Evaluation and Audit

Evaluation will include a:

- Mechanism for recording, reviewing and acting on adverse venepuncture incidents
- System for maintaining practitioner competence
- Method for identifying further training needs

References

- An Bord Altranais (2000) Scope of Nursing and Midwifery Practice Framework. An Bord Altranais: Dublin.
- An Bord Altranais (2000) The Code of Professional Conduct for each Nurse and Midwife. An Bord Altranais: Dublin.
- Department of Health and Children (2009) Children First National Guidelines for the Protection and Welfare of Children. Department of Health: Dublin
- Dougherty, L. (2008) Peripheral Cannulation. Nursing Standard. 22 (52), 49-56.
- Dougherty, L. & Lister, S. (2009) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 7th Ed. Wiley Blackwell Pub: Chicester.
- Franurik, D., Koh, J.,L., and Schmitz, M.,L. (2000) Distraction Techniques with EMLA: Effects on IV Insertion Pain and Distress in Children. Children's Healthcare. 29 (2), 87-101.
- Health Service Executive (2008) A Practical Guide to Immunisations. HSE: Dublin.
- Health Service Executive (2010) A Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives. HSE: Dublin
- Jamieson, E. et al (1988) Guideline for Clinical Nursing Practice. Churchill Livingstone: London.
- Lavery, I. (2003) Peripheral Intravenous Cannulation and Patient Consent. Nursing Standard. 17 (28) 40-42.
- Lavery, I., and Ingram, P. (2005) Venepuncture: Best Practice. Nursing Standard. 19 (49) pp 55-65.
- Royal College of Nursing (2003) Restraining, Holding Still and Containing Children and Young People (Guidance for Nursing Staff). Royal College of Nursing: London.
- Royal College of Nursing (2005) Competencies: An Education and Training Competence Framework for Peripheral Venous Cannulation in Children and Young People: Royal College of Nursing: London <http://www.rcn.org.uk/>
- Scales, K. (2005) Vascular Access: A Guide to Peripheral Venous Cannulation. Nursing Standard. 19 (49) pp. 48-52
- Shields, L., Pratt, J. and Hunter, J. (2006) Family-Centred Care: A Review of Qualitative Studies. Journal of Clinical Nursing, 15: 1317 – 1323
- World Health Organisation (2002) World Health Organisation- Collaborating Centre for Patient Safety Solutions. <http://www.ccforspatientsafety.org/>



Resources

- An Bord Altranais (2002) Recording Clinical Practice Guidance to Nurses and Midwives An Bord Altranais: Dublin
- An Bord Altranais (2003) Guidelines on the Key Points that may be Considered when Developing a Quality Clinical Learning Environment: <http://www.nursingboard.ie/>
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. Dublin: An Bord Altranais. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2007) Requirements and Standards for Post-Registration Nursing and Midwifery Education Programmes – Incorporating the National Framework of Qualifications. 1st Ed. An Bord Altranais: Dublin: <http://www.nursingboard.ie/>
- An Bord Altranais (2007) Guidance to Nurses and Midwives on Medication Management An Bord Altranais: Dublin.
- An Bord Altranais (2007) Requirements and Standards for Post-Registration and Continuing Competence Nursing and Midwifery Education Programmes-Incorporating the National Framework of Qualifications. An Bord Altranais: Dublin
- Ayliffe, G., A., J., Fraise, A., P., Geddes, A., M. and Mitchel, K. (2000) Control of Hospital Infection, A Practical Handbook. 4th ed. Arnold: London
- Back, F., & Hughes, J. (1997) Venepuncture. Nursing Standard. 11(41), pp.49-53
- Beyersdoerfer, B. (2001) cited in Smith, C. (2005) The Venepuncture Procedure-Pediatric Practices in Children's Nursing.
- Bowden, V., R. & Greenberg, C., S (2007) Pediatric Nursing Procedures. 2nd edn Lippincott Williams & Wilkins: New York.
- Briggs, J. (2006) Venepuncture - Acute Care. Johanna Briggs Institute. www.joannabriggs.edu.au
- Brooker, C. (2003) Human Structure & Function. Mosby: London.
- Broome, M., E. (2000) Helping Parents Support Their Child in Pain. Pediatric Nursing 26(3), 315-317.
- Chamley, C., A., Carson P., Randall, D. and Sandwell, M. (2005) Developmental Anatomy and Physiology of Children, A Practical Approach. Churchill Livingstone: London.
- Collins, M., Dougherty, L., de Verteuil, A. and Morris, W. (2005) A Structured Learning Programme for Venepuncture and Cannulation. Nursing Standard. 20(26), pp. 34-40
- Davies, E., H. & Molloy, A. (2006) Comparison of Ethyl Chloride Spray with Topical Anaesthetic in Children Experiencing Venepuncture. Paediatric Nursing. 18(3), 39-43.
- Department of Health and Children (2005) The Prevention of Transmission of Blood-Borne Diseases in the Health-Care Setting: <http://www.dohc.ie/>
- Duff, A., J., A. (2008) Incorporating Psychological Approaches into Routine Paediatric Venepuncture. ARCH.DIS.Child. <http://adc.bmj.com/cgi/content/full/88/10/931>
- Ernst, D., J. and Ernst, C. (2001) Phlebotomy for Nurses and Nursing Personnel 1st edn Healthstar Press: USA

- Glasper, A., & Richardson, J. (2006) A Textbook of Children's and Young Peoples Nursing. Churchill Livingstone: London.
- Health Information and Quality Authority (2009) National Standards for the Prevention and Control of Health Care Associated Infections. HIQA: Dublin
- Health Information and Quality Authority (2008) National Hygiene Services Quality Review Standards and Criteria: <http://www.hiqa.ie/>
- Health Service Executive. (2001) Health Protection Surveillance Centre. The Strategy for the Control of Antimicrobial Resistance in Ireland: <http://www.ndsc.ie/>
- Health Service Executive (2005) The Control and Prevention of MRSA in Hospitals and in the Community: A Strategy for the Control of Antimicrobial Resistance in Ireland. Health Protection Surveillance Centre. <http://www.ndsc.ie/>
- Health Service Executive (2005) Strategy for the Control of Antimicrobial Resistance in Ireland- Guidelines for Hand Hygiene in Irish Health Care Settings. HSE: Dublin. www.hpsc.ie/
- Health Service Executive (2007) Infection Control Action Plan. http://www.hse.ie/eng/newsmedia/2007_Archive/June_2007/_HSE_committed_to_tackling_MRSA.html
- Health Service Executive (2007) The Prevention and Control of Health Care Associated Infections in Ireland. HSE: Dublin
- Health Service Executive (2007) Quality & Risk Management Standards.
- Health Service Executive (2007) Risk Management in the HSE: An Information Handbook
- Health Service Executive South Eastern Area (2007) Guidelines for Nursing/Midwifery Staff Undertaking Peripheral Intravenous Cannulation and/or Venepuncture in Children. Health Service Executive South Eastern Area.
- Health Service Executive (2008) Findings from the Survey of Venepuncture and Intravenous Cannulation Education and Training Among Nurses and Midwives Employed within the Republic of Ireland. Dublin: Stationary Office.
- Health Service Executive (2009) Infection Control E Learning Module: <http://www.hseland.ie/>
- Health Service Executive (2010) A Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives. HSE: Dublin
- Hockenberry, M., J. & Wong, D., L. (2003) Wong's Nursing Care of Infants and Children. 7th ed. Mosby: Philadelphia
- Krechel, S., W., & Bildner, J. (1995). CRIES: A New Neonatal Postoperative Pain Measurement Score- Initial Testing of Validity and Reliability. Paediatric Anaesthesia 5: 53-61.
- Lillystone, R. (1999) Easing the Pain. Nursing Standard. 19 (41), 67-68.
- Malarkey, L., and McMorro, M., E. (1998) Laboratory & Diagnostic Tests, A Pocket Guide. Saunders: Philadelphia.
- Masoorli, S. (2002) Catheter Related Nerve Injury: Inherent Risk or Avoidable Outcome? Journal of Vascular Access Devices. 7 (4) 49.
- McCall, E. & Tankersley, (2003) Phlebotomy Essentials. 3rd Ed. Lippincott Williams & Wilkins: Philadelphia
- Melhuish, S. & Payne, H. (2006) Nurses' Attitudes to Pain Management during Routine Venepuncture in Young Children. Paediatric Nursing. 16(2) 20-22.



- Moore, K., L., and Dalley, A., F. (2009) Clinically Oriented Anatomy. 6th Edn Lippincott Williams and Wilkins: New York.
- National Health Service Education for Scotland (2004) Transferring the Skills: A Quality Assurance Framework for Venepuncture, Cannulation and Intravenous Therapy: <http://www.nes.scot.nhs.uk/>
- National Health Service of United Kingdom, National Patient Safety Agency: <http://www.npsa.nhs.uk/>
- National Health Service of United Kingdom, The Health and Safety Executive: <http://www.hse.gov.uk/>
- National Health Service of United Kingdom, The Medicines and Healthcare Products Regulatory Agency: <http://www.mhra.gov.uk/>.
- National Institute of Health Pain Consortium (2007) Pain Intensity Scales. www.painconsortium.nih.gov/pain_scales/index.html
- Royal College of Nursing (2005) Informed Consent in Health and Social Care Research. Royal College of Nursing: London.
- Tortora, G., L. and Grabowaki, S., R. (2003) Principles of Anatomy and Physiology. Harper Collins College Publications: New York

Appendix i

Psychological, Pharmacological and Non Pharmacological Methods of Pain Relief for Intravenous Cannulation and Venepuncture in Children

Please refer to local guidelines and policies on pain scales and distraction techniques, pharmacological and non pharmacological methods of pain relief. Pain Scales used when appropriate should be developmentally, physically, emotionally and cognitively suitable for the child.

Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Neonatal	<ul style="list-style-type: none"> Exhibits facial expressions of pain: Brows lowered & drawn together, eyes tightly closed mouth opened & squarish. Cry intensely, loudly, inconsolable Changes in sleep/awake cycles, activity level Exhibit hypersensitivity or irritability Becomes withdrawn unresponsive. <p>Fears and concerns: Totally dependant on parents and other adults for basic needs.</p>	<p>CRIES Pain scale for neonates that uses biophysiological indicators of pain (Krechel & Bildner, 1995).</p>	<ul style="list-style-type: none"> Explain procedure to parents/legal guardian and reason for same and encourage questions. (If the parents do not speak English arrangements must be made according to organisational policy to organise an interpreter). Encourage parental tactile contact and soothing verbal stimuli. Mum can also be encouraged to breastfeed if child does not use a pacifier when appropriate. Ask parents if they wish to be present during the procedure (Duff 2008). 	<ul style="list-style-type: none"> Sucrose and Glucose as prescribed and if neonate is not NPO. Topical anaesthesia is not recommended for neonates. Instead sucrose is used for babies over 32 weeks gestation Oral pacifiers (soothers) over 24 weeks or if mum is breastfeeding encourage same where appropriate. Neonate should be kept warm for procedure (Trigg & Mohammed, 2006)





Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Infants 0-1 year	<ul style="list-style-type: none"> Exhibit facial expressions of pain- brows lowered & drawn together, eyes tightly closed, mouth opened & squarish Cry intensely, loudly, inconsolable Poor oral intake Changes in sleep/awake cycles, activity level. Exhibit hypersensitivity or irritability. Becomes withdrawn unresponsive <p>Fears and concerns: Totally dependant on parents and other adults for basic needs. Trusts that adults will respond to basic needs.</p>	<p>FLACC (Face, legs, arms, cry and consolability Scale) Behavioural assessment scale that uses body movements and sounds to assess: the pain of infant and toddlers (Hockenberry & Wong 2003)</p>	<ul style="list-style-type: none"> Explain procedure to parents and reason for same Encourage parental tactile contact and encourage parent to hold and comfort but not to restrain the child (RCN 2003). Explain to the child regarding that the spray can feel cold. Also explain that Ametop or Emla can be called 'magic cream or gel' as it 'disappears' absorbs when used. 	<ul style="list-style-type: none"> Sucrose and Glucose as prescribed. Application of topical anaesthetic (e.g. Amethocaine 4% Gel Ametop as Emla is not recommended for children under 1 year) (Please refer to manufacturer's guidelines and local organisational guidelines). Infants should be supervised when applied in case of ingestion. Use of ethyl chloride spray. (Davies & Molloy, 2006, Scales, 2008 & Dougherty, 2008). (Please refer to local guidelines, policies and manufacturers' instructions) Oral pacifiers (soothers) or if mum is breastfeeding encourage same. May cry for discomfort on being held rather than being in pain.
Toddler (1-3 year)	<ul style="list-style-type: none"> Changed behaviour: Irritability, crying, screaming, unusual posture, unusual quietness Increased clinging, loss of appetite Restlessness, disturbed sleep pattern <p>Fears and concerns: Little fear of danger. Fear of separation from parents. Limited language and understanding of procedure. Threat of immediate pain is overwhelming.</p>	<p>FLACC pain scale: same as above</p>	<ul style="list-style-type: none"> Same as infant. Ascertain from parent common word and for pain (hurt) and ways of alleviating pain. Parents should be encouraged to hold and comfort the child prior, during and after procedure. Encourage parents to decorate cot of child with pictures and toys. Parent may read a story book to child with clinical procedure explained in a child friendly manner (Broome 2000 & Willock et al., 2004). 	<ul style="list-style-type: none"> Application of topical anaesthetic agents or 'magic cream' (e.g. Amethocaine 4% Gel (Ametop Gel) and Lidocaine and Prilocaine 5% (Emla Cream). Refer to manufacturer's instructions and local organisational guidelines. Toddlers should be supervised when applied in case of ingestion. (Tak & van Bon 2006 & Franuik et al 2000). Be honest with child and let them know that they will feel a little pinch and let them know when they will feel it. Listen to cassettes with music/family voices or child's favourite story/song. Distraction child with favourite toy or game. Oral pacifiers (soothers) or if mum is breastfeeding encourage same. Reassure the child that you are only taking a small amount of blood and that they will have sufficient blood left. Ascertain the advice/support of play therapist and psychologist if indicated. The organisation may have Distraction boxes to use for distraction and minimisation of fear 10 minutes prior to the procedure. Such boxes would include carefully selected toys such as bubbles, toys, picture glasses etc (Winskill & Andrews 2008) Child may need sedation as directed by the Doctor if procedure will cause severe distress or has needle phobia.

Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Preschool age children (4-6yr)	<ul style="list-style-type: none"> Able to use more descriptive adjectives and attachments of associated emotions (e.g. sad, painful, mad) <p>Fears and concerns: Greater body awareness. Fear injury to body. Difficult to realise that the pain from the needle will be over quickly. Reassure child that crying is ok.</p>	<p>Wong-Baker Face Rating Scale Suggested age group 4 years and over & older children with different languages. (Hockenberry & Wong 2003)</p>	<ul style="list-style-type: none"> Advised to have parent present to assist with comforting the child and gaining child's cooperation. (If the parents and/or child does not speak English arrangements must be made according to organisational policy to organise an interpreter) Reassure the child that they have done nothing wrong and are not being punished. Parent may read a story book to child with the clinical procedure explained in a child friendly manner. 	<ul style="list-style-type: none"> Same as with toddler. Ascertain what the child likes to play with as this could be used as a distraction technique. Child will have developed magical thinking which can be used for fantasy scenes in guided imagery. Allow child to be involved in the decision making process for procedure. (e.g. choice of vein)
School age children (6-12yr)	<ul style="list-style-type: none"> Clearer differentiation of pain intensity. Beginning to use cognitive coping strategies. Wants explanations of why pain hurts. <p>Fears and concerns: Fear loss of self control. More willing to participate and less dependant on parent. Concerns of pain or procedure limiting current activities rather than future abilities.</p>	<p>Numerical scale rating Child rates pain intensity from 1-10.</p> <p>Wong-Baker Face Rating Scale Can be used for child with different languages. (Hockenberry & Wong 2003 & Trigg & Mohammed 2006)</p> <p>FLACC Pain scales have been proven to be beneficial in this age group. (Nilsson et al 2008)</p>	<ul style="list-style-type: none"> Child may not want parent present. Parents and practitioner can use diagrams models to explain procedure. Encourage parents to bring in child's favourite music and books. 	<ul style="list-style-type: none"> Important to allow child to be involved in the decision making process. Child will want more explanations of need for procedure. Child will have developed magical thinking which can be used for fantasy scenes in guided imagery Child can be distracted by reading books, listening to music or T.V. (Doverly, 1992).





Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Adolescent 13 yrs+	<ul style="list-style-type: none"> Pain acknowledged as a 'feeling' May be hyperresponsive to pain, minor procedures magnified. <p>Fears and concerns: Want to be consulted with decisions regarding procedure. Sense of identity. Maybe embarrassed to show fear. May act hostile to hide fear. Separation from peers (Duff 2008, Melhuish & Payne 2006 & Willock et al 2004).</p>	As per 6-12yr on previous page	<ul style="list-style-type: none"> Child may not want parent present. Child may be resistant to parental and authority figures. Explanation should be given in adult terms. 	<ul style="list-style-type: none"> Consulted in the decision making process. Give as much time as possible for advanced warning of procedure. Reality conversation Guided imagery Listening to music, reading books. Explanation of equipment and function allow time for questions.
Children with special needs/Intellectually challenged	<ul style="list-style-type: none"> Indications of pain: Increased flexion or extension Crying or alteration in type of sounds made Quieter/withdrawn Hypersensitivity Breath holding Colour changes Changes of facial expression Protective posture <p>Fears and concerns: Similar to age appropriate behaviours that are based on their developmental level (Duff 2008).</p>	<p>FLACC Behavioural assessment scale that uses body movements and sounds to assess older children that are cognitively & verbally impaired</p>	<ul style="list-style-type: none"> Parent/ Family member or carer should stay with child and assist if necessary. Ascertain from parent/ family member or carer how the child normally reacts to pain or discomfort and the comforting measures that they use. Explain procedure to parent/ Family member or carer and reason for same (Hockenberry & Wong 2003 & Trigg & Mohammed 2006). 	<ul style="list-style-type: none"> Similar to age appropriate behaviours that are based on their developmental level

Developed by Carmel O'Donnell, RNT, CCNE, based in OLCCHC.

References

- Broome M.E. (2000) Helping parents support their child in pain. *Pediatric Nursing* 26(3), 315-317.
- Davies E.H. & Molloy a. (2006) Comparision of ethyl chloride spray with topical anaesthetic in children experiencing venepuncture. *Paediatric Nursing*. 18(3), 39-42.
- Dougherty L. (2008) Peripheral cannulation. *Nursing Standard*. 22 (52), 49-56.
- Doherty N. (1992) Therapeutic play in hospital. *British Journal of Nursing*. 1(2), 77-81.
- Duff A.J.A. (2008) Incopporating psychological approaches into routine paediatric venepuncture. *ARCH.DIS.Child*. <http://adc.bmj.com/cgi/contentr/full/88/10/931>.
- Franuirk D., Koh J.L. & Schmitz M.L. (2000) Distraction techniques with Emla: Effects on IV insertion pain and distress in children. *Childrens Health Care*. 29(2), 87-101.
- Hockenberry M.J. & Wong D.L. (2003) *Wong's Nursing care of infants and children*. 7th ed. Mosby, Philadelphia.
- Melhuish S. & Payne H. (2006) Nurses' attitudes to pain management during routine venepuncture in young children. *Paediatric Nursing*. 16(2) 20-22.
- Nilson S., Finnstrom B. & Kokinsky E. (2008) The FLACC behavioral scale for procedural pain assessment in children ages 5-16 years. *Pediatric Anesthesia*. (18), 767-774.
- Krechel, SW & Bildner, J. (1995). CRIES: a new neonatal postoperative pain measurement score– initial testing of validity and reliability. *Paediatric Anaesthesia*, 5: 53-61.
- Royal College of Nursing (2003) *Restraining, holding still and containing children and young people (Guidance for nursing staff)*. Royal College of Nursing, London.
- Scales K. (2008) Intravenous therapy: a guide to good practice. *British Journal of Nursing*. 17(19), S4-S10.
- Tak J.H. & van Bon W.H.J. (2006) Pain-and distress-reducing interventions for venepuncture in children. *Health & Development*, 32 (3), 257-268.
- Trigg E. & Mohammed T.A. (2006) *Practices in Children's Nursing. Guidelines for hospital and community*. 2nd ed. Churchill Livingstone, London.
- Willock J. et al (2004) Peripheral venepuncture in infants and children. *Nursing Standard*. 18 (27),43-50.



Appendix ii

Venepuncture Procedure-Infant

The venepuncture procedure follows aseptic principles using a non touch technique.

In undertaking the procedure, it is important that only the equipment required is brought to the bedside. This is to ensure that cross-contamination does not occur, increasing the risk to other patients.

Equipment required should be based on an assessment of the infant and is as follows:

Venepuncture Procedure – Infant - List of Equipment

- | | |
|---|---|
| <ul style="list-style-type: none"> • A clean clinical tray • Small kidney dish for Healthcare Risk Waste (placed in tray) • Sharps container (large enough to accommodate the blood collection system) • Disposable non sterile sheet – (optional in case of blood spillage) • *Personal Protective Equipment (e.g., 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield) • Skin disinfectant <ul style="list-style-type: none"> • < 2 Months 0.5% -1% Chlorhexidine Aqueous Solution • > 2 Months -70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available • Alcohol hand rub/gel | <ul style="list-style-type: none"> • Clean tourniquet • Topical anaesthetic agent if prescribed • **Required blood collection set • **Required blood specimen bottles • Blood requisition forms (fully completed with infant details) • A biohazard bag for transport of specimens • Sterile gauze – (to apply pressure and absorb blood spillages) • Sterile child friendly plaster/band aid • Reward e.g. sticker or certificate |
|---|---|

*As per Standard Precautions, the use of a plastic apron and/or face protection should be assessed by each Health Care Worker based on the risk of blood splashing or spraying during the procedure.

**Range and type of equipment may vary depending on local organisational policy.

Venepuncture Procedure - Infant

Prior to Procedure

- Confirm indication for the procedure, checking requisition forms for specific blood tests required
- Disinfect a clean clinical tray using 70% alcohol (or equivalent as per local guidelines)
- Collect the appropriate equipment and inspect its integrity

At the Bedside

- Carry out Hand Hygiene for a minimum of 15 seconds
- Check the infant's identification, confirming same with parent, legal guardian or family
- Explain the procedure as appropriate to age and understanding and check for allergies
- Discuss pain relief (Pharmacological and non pharmacological methods)
- Obtain informed consent with parent or legal guardian
- Ensure the infant is comfortable, using minimal clinical holding or distraction therapies as required
- Request assistance from other health care workers or family as required
- Apply the tourniquet (5/6cms above chosen site) and tighten slowly (Do not leave on for longer than one minute). In neonates, especially extremely low birth weight babies, a tourniquet is not recommended
- Place arm below heart level to encourage venous filling
- Palpate the site to check for rebound elasticity -press lightly with one finger and release
- Choose the appropriate vein

Preparation

- Decontaminate hands using alcohol hand rub/gel, allow to dry
- Apply non sterile gloves, (apron and face protection if required)
- Open sterile gauze using the packaging for a sterile field
- Place disposable non sterile sheet (optional) under the infant's arm
- Disinfect the site, using skin disinfectant –(0.5% -1% Chlorhexidine Aqueous Solution /70% impregnated alcohol wipes / 2% Chlorhexidine in 70% Alcohol) according to age
- Disinfect in a circular motion from insertion site outwards (5-10cms diameter)
- Place the used alcohol wipes in the kidney dish
- Allow to air dry, do not repalpate the site

Venepuncture Procedure

- Open and assemble the appropriate blood collection set
- Use your non dominant hand to achieve skin traction
- Hold the blood collection set between your thumb and index finger
- Position the needle-facing bevel upwards
- Insert the needle of the blood collection set, directly above the vein, through the skin (angle 10-30 degrees)
- When the needle punctures the vein, observe for flashback in the chamber of the blood collection set (butterfly system only). The flashback is not evident when using a tube holder and 21/22 gauge needle (Vacuum method)



- Decrease the angle between the needle and the skin
 - o When using the tube holder and needle (Vacuum method), anchor the tube holder securely, using your thumb and index finger. Using your thumb, gently but firmly push the blood collection bottle onto the interior needle and allow the blood collection bottle to fill to the appropriate level
 - o When using the monovette aspiration system, pull the plunger back slowly until the blood bottle is filled
 - o When using the butterfly system, draw a discard bottle first, as air from the blood collection tubing will cause under filling of the bottle
- When multiple blood tests are required, ensure the blood tests are taken in the proper order of draw
- Loosen and release the tourniquet
- Invert bottles gently four to five times to mix appropriately, Do Not shake bottles
- Apply sterile gauze over the puncture site, and remove the needle activating the needle safety device
- Place the blood collection set into the sharps box
- Maintain digital pressure on the puncture site to prevent blood leakage
- Arm can be elevated while applying pressure to prevent haematoma formation but do not bend the arm
- Discard the blood contaminated gauze in the kidney dish
- Apply sterile dressing or child friendly plaster over the puncture site
- Remove gloves and face protection if applicable and discard into kidney dish
- Carry out effective hand hygiene for a minimum of 15 seconds (Alcohol hand rub/gel)

After Care

- Inform the parents/legal guardian of potential complications and advise to report same
- Ensure the infant is in a comfortable position and reassure, offering a child friendly reward as appropriate
- Apply gloves and ensure blood collection bottles and requisition forms are correctly labelled. New gloves are required for the safety of the Health Care Worker and to prevent contamination of the requisition forms
- Place all blood collection bottles and forms into the Biohazard bag
- Bring tray with used items to the dirty utility
 - o Dispose of healthcare risk and non risk waste appropriately
 - o Clean and disinfect the clinical tray and kidney dish if reusable
 - o Clean and disinfect reusable eye shield as per manufacturer's instructions if applicable
 - o Remove gloves and apron and carry out appropriate hand hygiene for a minimum of 15 seconds
- Arrange for blood samples to be transported to the laboratory
- Document the procedure, communicate and inform relevant staff

Appendix iii

Venepuncture Procedure-Child

The venepuncture procedure follows aseptic principles using a non touch technique.

In undertaking the procedure, it is important that only the equipment required is brought to the bedside. This is to ensure that cross-contamination does not occur, increasing the risk to other patients.

Equipment required should be based on an assessment of the child and is as follows:

Venepuncture Procedure – Child – List of Equipment	
<ul style="list-style-type: none"> • A clean clinical tray • Small kidney dish for Healthcare Risk Waste (placed in tray) • Sharps container (large enough to accommodate the blood collection system) • Disposable non sterile sheet – (optional in case of blood spillage) • *Personal Protective Equipment (e.g., 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield) • Skin disinfectant (70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available) • Alcohol hand rub/Gel 	<ul style="list-style-type: none"> • Clean tourniquet • Topical anaesthetic agent if prescribed • **Required blood collection set • **Required blood specimen bottles • Blood requisition forms (fully completed with child details) • A biohazard bag for transport of specimens • Sterile gauze – (to apply pressure and absorb blood spillages) • Sterile child friendly plaster/band aid • Reward as agreed with child and parent e.g. sticker, or certificate
<p>* As per Standard Precautions the use of a plastic apron and/or face protection should be assessed by each Healthcare Worker based on the risk of blood splashing or spraying during the procedure.</p>	
<p>**Range and type of equipment may vary depending on local organisational policy.</p>	



Venepuncture Procedure - Child

Prior to Procedure

- Confirm indication for the procedure, checking requisition forms for specific blood tests required
- Disinfect a clean clinical tray using 70% alcohol (or equivalent as per local guidelines)
- Collect the appropriate equipment and inspect it's integrity

At the Bedside

- Carry out hand hygiene for a minimum of 15 seconds
- Check the child's identification, confirming same with child and parent, legal guardian or family
- Explain the procedure as appropriate to age and understanding and check for allergies
- Discuss pain relief (Pharmacological and non pharmacological methods)
- Obtain informed consent with parent or legal guardian
- Ensure the child is comfortable, using minimal clinical holding or distraction therapies as required
- Request assistance from other health care workers or family as required
- Apply the tourniquet (5/6cms above chosen site) and tighten slowly (Do not leave on for longer than one minute)
- Ask the child to open/close fist if able and keep fist closed or place arm below heart level to encourage venous filling
- Palpate the site to check for rebound elasticity -press lightly with two fingers and release
- Choose the appropriate vein

Preparation

- Decontaminate hands using alcohol hand rub /gel, allow to dry
- Apply non sterile gloves, (apron and face protection if required)
- Open sterile gauze using the packaging for a sterile field
- Place disposable non sterile sheet (optional) under the child's arm
- Disinfect the site, using skin disinfectant –(70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol)
- Disinfect in a circular motion from insertion site outwards (5-10cms diameter)
- Place the used alcohol wipes in the kidney dish
- Allow to air dry, do not repalpate the site

Venepuncture Procedure

- Open and assemble the appropriate blood collection set
- Use your non dominant hand to achieve skin traction
- Hold the blood collection set between your thumb and index finger
- Position the needle, facing bevel upwards
- Insert the needle of the blood collection set, directly above the vein, through the skin (angle 10-30 degrees)

- When the needle punctures the vein, observe for flashback in the chamber of the blood collection set (butterfly system only). The flashback is not evident when using a tube holder and 21/22 gauge needle (Vacuum method)
- Decrease the angle between the needle and the skin
 - o When using the tube holder and needle (Vacuum method), anchor the tube holder securely, using your thumb and index finger. Using your thumb, gently but firmly push the blood collection bottle onto the interior needle and allow the blood collection bottle to fill to the appropriate level
 - o When using the monovette aspiration system, pull the plunger back slowly until the blood bottle is filled
 - o When using the butterfly system, draw a discard bottle first, as air from the blood collection tubing will cause underfilling of the bottle
- When multiple blood tests are required, ensure the blood tests are taken in the proper order of draw
- Loosen and release the tourniquet
- Invert bottles gently four to five times to mix appropriately, Do Not shake bottles
- Apply sterile gauze over the puncture site, and remove the needle activating the needle safety device
- Place the blood collection set into the sharps box
- Maintain digital pressure on the puncture site to prevent blood leakage
- Arm can be elevated while applying pressure to prevent haematoma formation but do not bend the arm
- Discard the blood contaminated gauze in the kidney dish
- Apply sterile dressing or child friendly plaster over the puncture site
- Remove gloves and face protection if applicable and place in the kidney dish
- Carry out effective hand hygiene for a minimum of 15 seconds (Alcohol hand rub /gel)

After Care

- Inform the child and parents/legal guardian of potential complications and advise to report same
- Ensure the child is in a comfortable position and reassure, offering a child friendly reward as appropriate
- Document the procedure, communicate and inform relevant staff
- Apply gloves and ensure blood collection bottles and requisition forms are correctly labelled. New gloves are required for the safety of the Healthcare Worker and to prevent contamination of requisition forms
- Place all blood collection bottles and forms into the biohazard bag
- Bring tray with used items to the dirty utility
 - o Dispose of healthcare risk and non risk waste appropriately
 - o Clean and disinfect the clinical tray and kidney dish if reusable
 - o Clean and disinfect reusable eye shield as per manufacturer's instructions if applicable
 - o Remove gloves and apron, and carry out appropriate hand hygiene for a minimum of 15 seconds
- Arrange for blood samples to be transported to the laboratory
- Document the procedure, communicate and inform relevant staff



Appendix iv

Potential Complications for the Venepuncture Procedure

Venous Spasm	Venous spasm is a sudden involuntary contraction of the vein, resulting in temporary cessation of blood flow in the vein.
Cause	<ul style="list-style-type: none"> Venous spasm is caused by fear and anxiety and is usually stimulated by cold infusates and mechanical or chemical irritation
Signs	<ul style="list-style-type: none"> Expressions of pain (verbal or non verbal) such as facial expressions or crying Cramping Numbness above the venepuncture site
Prevention	<ul style="list-style-type: none"> Explain the procedure to reduce fear and anxiety
Treatment	<ul style="list-style-type: none"> Gently massage or warm the limb and retry Slow down the process of venepuncture (there is no need to remove the needle). Wait for the vein to relax before proceeding

Haematoma	Haematoma is the formation of a painful and hard swelling at the venepuncture site.
Cause	<ul style="list-style-type: none"> Leakage of blood at the site of the venepuncture, may collect as a haematoma Inappropriate use of a small fragile vein, or too large a needle Excessive probing to find the vein Removing the needle prior to releasing the tourniquet The needle going all the way through the vein The needle only partially entering the vein, allowing leakage
Signs	<ul style="list-style-type: none"> Expressions of pain (verbal or non verbal) such as facial expressions or crying, loss of mobility or reluctance to move the affected limb Swelling, discolouration or coolness of the area adjacent to the puncture site.
Prevention	<ul style="list-style-type: none"> Selection of appropriate equipment for the size of the vein Skilled technique
Treatment	<ul style="list-style-type: none"> Release the tourniquet, remove the needle and apply pressure until haemostasis has been achieved Elevate the limb and apply a cool compress if necessary, avoiding an ice burn Apply a pressure dressing if bleeding is persistent Explain what has happened and request that staff are informed if the area becomes more painful as the haematoma may be pressing on a nerve Do not reapply the tourniquet to the affected limb Request a medical review, if required Monitor, treat as prescribed and document in the nursing care plan Report the occurrence of this complication, as per local organisational policy

Phlebitis	Phlebitis is an acute inflammation of the intima of a vein (Dougherty, 2008).
Cause	<ul style="list-style-type: none"> Localised infection or irritation of the vein caused by the introduction of the venepuncture needle (mechanical phlebitis)
Signs	<ul style="list-style-type: none"> Expressions of pain (verbal or non verbal) such as facial expressions or crying Loss of mobility or reluctance to move the affected limb Redness, inflammation, or purulent ooze at the venepuncture site
Prevention	<ul style="list-style-type: none"> Early detection is crucial, with regular monitoring required In children, the site should be monitored more frequently as they are at increased risk due to their small vessels
Treatment	<ul style="list-style-type: none"> Observe and monitor the venepuncture site Assess the degree of phlebitis Take a swab of the site for culture and sensitivity Clean and apply a dressing, to the affected area and administer analgesia as prescribed Report the incident of this complication Treat as prescribed and document the care given

Nerve Injury	Nerve injury is an inadvertent injury to the nerve.
Cause	<ul style="list-style-type: none"> Inappropriate selection of the venepuncture site Poor technique
Signs	<ul style="list-style-type: none"> Pain described as an 'electrical shock' or a 'pins and needles' sensation Crying Loss of mobility or reluctance to move the affected limb
Prevention	<ul style="list-style-type: none"> Appropriate clinical assessment Appropriate site selection Skilled technique
Treatment	<ul style="list-style-type: none"> Release the tourniquet, remove the needle and apply gentle pressure Explain and reassure the child about what has occurred Advise that any symptoms of altered sensation may persist for a few hours Arrange a medical review, if required Monitor, treat as prescribed and document in the nursing care plan Finally, report the occurrence of this complication, as per local organisational policy



Arterial Puncture	The inadvertent puncture of the artery is another complication associated with venepuncture.
Cause	<ul style="list-style-type: none"> • Inappropriate selection of the venepuncture site • Poor technique
Signs	<ul style="list-style-type: none"> • Presence of bright red blood • Expressions of pain (verbal or non verbal) such as facial expressions or crying
Prevention	<ul style="list-style-type: none"> • Appropriate clinical assessment • Appropriate site selection • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, removing the needle immediately and apply pressure until haemostasis has been achieved • Explain and reassure regarding what has happened • Request that a member of staff is informed if bleeding recurs from the puncture site, if pain continues or if there is increasing swelling or bruising • Arrange a medical review • Monitor, treat as prescribed and document in the nursing care plan • Report the occurrence of this complication, as per local organisational policy

Needle Stick Injury	A needle stick injury (percutaneous inoculation injury) is an inadvertent puncture of the skin with a potentially contaminated needle.
Cause	<ul style="list-style-type: none"> • Inadvertent puncture of the skin during the venepuncture procedure
Signs	<ul style="list-style-type: none"> • Pain • Bleeding • A visible puncture of the skin of the nurse or midwife
Prevention	<ul style="list-style-type: none"> • The application of Infection Prevention & Control and Health and Safety Policy will support safe practice
Treatment	<ul style="list-style-type: none"> • Encourage the wound to bleed freely (do not suck the wound) • Wash the affected area with liquid soap under running water • Apply a waterproof dressing over the affected area • Report the incident to your line manager • Record the incident accordingly by completing the relevant incident form • Submit the incident form to your risk manager or line manager • For follow-up and advice, contact your Occupational Health Dept and/or the Accident and Emergency Dept as per local organisational policy

Appendix xiv

National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Peripheral Cannulation in Adults



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1.0 Introduction

1.1 Policy Statement

It is the policy of the HSE that registered nurses and midwives, within the Health Service Executive (HSE), undertaking peripheral intravenous cannulation must have successfully achieved competence having completed an education programme that is compliant with the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010). In addition, nurses and midwives undertaking peripheral intravenous cannulation will do so in accordance with the procedural elements as outlined in this policy.

1.2 Purpose

The purpose of this policy is to:

- Outline the roles and responsibilities of the clinical line manager and the nurse or midwife undertaking the skill of peripheral intravenous cannulation
- Set out procedures based on best evidence, aligned with the national HSE standardised approach, which safeguard the patient and guide the nurse or midwife in the performance of peripheral intravenous cannulation
- Aid in the preparation and support of patients and their families while undergoing peripheral intravenous cannulation procedures

1.3 Scope

This policy applies to all nurses and midwives, who have successfully completed the required education, training and competence assessment to carry out peripheral intravenous cannulation.

1.4 Disclaimer

The information contained within this policy is the most accurate and up to date, at date of approval. The policy contains a procedural guideline for local adaptation and it is the responsibility of the local organisation, to update this, according to best practice.



2.0 Glossary of Terms

Aseptic Technique:

Aseptic technique is implemented during any invasive procedure that bypasses the body's natural defences e.g. the skin or when handling equipment such as peripheral intravenous cannulae. This technique is used to reduce the potential problem of introducing pathogenic micro organisms into the body when the integrity and /or effectiveness of the natural body defences has been reduced.

(Jamieson et al, 1988, Dougherty and Lister, 2009)

Assessor:

An assessor is an identified nurse or midwife, who has undertaken a similar educational and clinical programme and is a competent expert practitioner. It is recommended that nurses and midwives develop their competence within specific disciplines, according to their practice.

Cannula:

A cannula is a short and flexible tube, containing a needle, or introducer, which pierces the peripheral vein, to provide access to the vascular circulation for the administration of intravenous fluids and medications.

Competence:

The ability of the registered nurse or midwife to practice safely and effectively fulfilling his/her professional responsibility within their scope of practice.

(An Bord Altranais, 2000)

Family Centred

Care:

A way of caring for patients and their families within health services which ensures that care is planned around the whole family, not just the individual patient and in which all the family members are recognised as care recipients.

(Shields et al., 2006)

Nurse:

A nurse is a person registered in the Live Register of Nurses as provided for in Section 27 of the Nurses Act 1985 and includes a midwife and nursing includes midwifery – Code of Professional Conduct for each Nurse and Midwife.

(An Bord Altranais, 2000)

**Parent or
Legal Guardian:**

The term parent or Legal Guardian is used to describe the parent and or legal guardian of the child who is under 16 years.

(A Practical Guide to Immunisations- HSE, 2008)

**Peripheral Intravenous
Cannulation:**

Peripheral intravenous cannulation is the introduction of a short, flexible hollow plastic tube or cannulae containing a needle (introducer), into a peripheral vein to: provide access to the vascular circulation, for the administration of fluids and medications.

(Dougherty, 2008 and Scales, 2005)



3.0 Roles and Responsibilities

3.1 Role and Responsibility of the Clinical Line Manager

It is the responsibility of the clinical nurse or midwife manager or line manager to ensure that nurses and midwives, who are undertaking peripheral intravenous cannulation fulfil the following criteria. Nurses and midwives must:

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais
- Be employed by the HSE
- Be approved by their Clinical Nurse or Midwife Manager as an appropriate person to expand their practice, to include Peripheral intravenous cannulation
- Be employed in an area where peripheral intravenous cannulation is required to enhance service provision
- Successfully complete an education and training programme in the Management and Administration of Intravenous Medication
- Successfully complete the educational preparation and competence assessment provided by this organisation, that is compliant with or equivalent to that outlined in the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010)

3.2 Role and Responsibility of the Nurse and Midwife

It is the responsibility of each registered nurse and midwife to:

- Work within their Scope of Practice -Scope of Practice Framework for Nurses and Midwives, (An Bord Altranais, 2000)
- Comply with this organisation's peripheral intravenous cannulation policy and procedures therein, when undertaking peripheral intravenous cannulation
- Be competent in the skill of peripheral intravenous cannulation and the equipment specific to the procedure
- Be familiar and comply with this organisation's infection prevention and control, health and safety procedures and risk management policies as they apply to peripheral intravenous cannulation
- Develop competence, specific to the needs of the service and patient group

4.0 Procedural Guideline for Peripheral Intravenous Cannulation for Adults

4.1 Indications for the Peripheral Intravenous Cannulation Procedure

The indications for peripheral intravenous cannulation are to:

- Provide intravenous hydration and/or correction of pre-existing dehydration or electrolyte imbalance
- Administer:
 - o intravenous drug therapy
 - o intermittent, continuous or bolus medications
 - o blood components and blood products
 - o an opaque medication and/or a diagnostic reagent to assist with diagnosis
- Facilitate intravenous access as required to enhance patient care
- Provide parenteral nutrition when the central route is unavailable

4.2 Considerations for the Insertion of a Peripheral Intravenous Cannula

- Peripheral intravenous cannulation is an invasive and traumatic procedure and is ordered only when necessary
- The peripheral intravenous cannulation procedure should not be ordered for routine phlebotomy
- A clinical assessment should be undertaken prior to the insertion of a peripheral intravenous cannula
- Peripheral intravenous cannulation should be carried out as close to the time of use to reduce the risk of accidental dislodgement and related complications
- Where peripheral intravenous access is poor and cannulation is difficult, alternative methods of access should be considered and discussed with the appropriate medical team
- Peripheral intravenous cannulation is regarded as a minor surgical procedure and is carried out with a high standard of hand hygiene, site preparation and maintenance
- A peripheral intravenous cannula should not be sited in close proximity to another cannula
- If two cannulae are in close proximity they should be secured with separate dressings



4.3 Preparation for Procedure

4.3.1 Informed Consent

Informed consent should be obtained from the patient or legal guardian prior to the procedure and as per local organisational policy. Informed consent is obtained from the legal guardian or next of kin if the patient does not have the cognitive ability to understand or make an informed decision.

If the patient does not speak English, arrangements should be made to ensure the procedure is understood and the consent is valid. The patient should be given adequate information and explanation.

4.3.2 Topical Anaesthetic Agents

Topical anaesthetic agents such as Ametop Gel, EMLA Cream and Ethyl Chloride Spray produce numbness of the skin and have been proven to reduce the pain experienced during the peripheral intravenous cannulation procedure (Dougherty, 2008). Details of topical anaesthetic agents are:

- **Ametop Gel:** Consists of Amethocaine 4% Gel. Indications: All Adults Application Time: Minimum of 30 minutes prior to procedure. Side Effects: Redness, swelling and itchiness.
- **EMLA Cream** (Eutectic mixture of local anaesthetics). Consists of: Lidocaine and Prilocaine 5% Cream. Indications: All Adults. Application Time: Minimum of one hour prior to procedure. Side Effects: Redness, swelling and itchiness
- **Ethyl Chloride Spray:** Consists of: Ethyl Chloride Spray. Indications: Use if allergic to or if patient has poor tolerance or anxiety relating to other agents or occlusive dressings. Suitable in emergency situations due to it's immediate action. Application Time: Immediate. Side Effects are extremely rare and include: cutaneous sensitisation, pigmentation. Overexposure can lead to headaches, dizziness, vomiting, loss of co-ordination and disorientation.

Topical anaesthetic agents should be applied to a limited number of locations only, as excessive use of agent can be harmful when absorbed (Scales, 2005 and Franurik et al., 2000). Topical anaesthetic agents must be prescribed on an individual basis and be used according to the manufacturer's instructions.

4.4 Vein Selection in Adults

Choosing the correct vein is important. When selecting the appropriate site of vein for venepuncture, it is best practice to begin in the most distal aspect of the vein. This allows for further attempts above the selected vein which will not have been impeded. When cannulating children, the specific advantages and disadvantages of potential venepuncture sites must be considered. These are outlined below:

Veins	Location	Advantages and Disadvantages
The Cephalic and Basilic Vein in the Forearm	<p>Cephalic Vein – runs under the skin on the radial side of the forearm</p> <p>Basilic Vein – runs up the ulnar side of the forearm</p>	<p>Advantages</p> <ul style="list-style-type: none"> • Easy to locate and routinely chosen for cannulation • It has larger veins, allowing for more rapid infusion • Hand can be freely used <p>Disadvantage of Basilic Vein</p> <ul style="list-style-type: none"> • Situated closest to nerves and arteries and caution should be exercised if chosen
Metacarpel Veins in the Dorsal Venous Network	- on the dorsum of the hand	<p>Advantages</p> <ul style="list-style-type: none"> • Easily visualised and palpated • Splinted by metacarpal bones <p>Disadvantages</p> <ul style="list-style-type: none"> • Difficult to secure • Flow affected by wrist Movement
Median Cubital Vein in the Antecubital Fossa	- situated in the antecubital fossa in the elbow	<p>Advantages</p> <ul style="list-style-type: none"> • Clearly visible • Well supported by subcutaneous tissue (prevents vein rolling under needle) • Deeper and more tolerant to irritant substances <p>Disadvantages</p> <ul style="list-style-type: none"> • Restricted movement • Flexion of the arm can interfere with flow of infusion



4.5 Clinical Assessment

A clinical assessment should be carried out by the nurse or midwife prior to the peripheral intravenous cannulation procedure. A Four Step Approach to the clinical assessment is outlined as follows:

Four Step Approach to Clinical Assessment

Check

- The indication for peripheral intravenous cannulation
- If intravenous medication or fluids could be given by any other route i.e.
 - o Is this the last dose of antibiotics?
 - o Is the patient on fluids or diet?
- Purpose, duration and rate of the intravenous infusion
- The clinical condition (acute/ chronic/emergency) of the patient
- Type of intravenous fluid or medication to be administered via the vein
- Location and length of the vein
- Condition of the vein (visual and palpation)
- Area is warm prior to cannulation procedure (veins constrict if cold, making the procedure more difficult)
- Allergies to medications, topical anaesthetic agents, dressings or plasters
- For needle phobia
- Previous history of difficult peripheral intravenous cannulation procedures
- For history of blood borne viruses, bleeding disorders or if receiving anticoagulation therapy

Choose

- Most distal aspect of the vein
- Non dominant hand
- Correct location, avoiding arteries and nerves
- Appropriate equipment to undertake procedure
- Appropriate topical anaesthetic agent

Avoid

- Hard, sclerosed, fibrosed, knotty, thrombosed veins or previous cannulation sites
- Areas with increased subcutaneous fat
- Sites with existing intravenous infusions in situ
- Sites that may require peripheral intravenous central catheter (PICC) insertion or arterial monitoring
- Valves in the vein (if visible or palpable)

Do Not Use

- Arm with obvious infection or bruising
- Arm with a fracture
- Arm with an arteriovenous (AV) fistula
- Arm affected by a cerebro vascular accident
- Arm affected by lymphoedema or where axillary lymph node clearance has taken place, for example post mastectomy

4.6 Equipment

The equipment required for the peripheral intravenous cannulation procedure is outlined in each of the peripheral intravenous cannulation procedures in appendix i.

- Peripheral Intravenous Cannulation Procedure Adult – Appendix i

Equipment required should be based on an assessment of the patient and the purpose of the peripheral intravenous cannulation and includes:

Peripheral Intravenous Cannulation - Adult - List Of Equipment	
<ul style="list-style-type: none">• A clean & disinfected dressing trolley• *Sterile dressing pack• Sharps container• Disposable non sterile sheet (optional – in case of blood spillage)• **Personal Protective Equipment (e.g 2 pairs of well-fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield)• Skin disinfectant: 70% impregnated alcohol Wipes or 2% Chlorhexidine in 70% alcohol when supply available• Topical anaesthetic agent (if prescribed)	<ul style="list-style-type: none">• Alcohol hand rub/gel• ***Intravenous cannula (choose size appropriately)• Extension set if appropriate• Clean tourniquet• IV Leur lock Cap/Bung• Ampoule of prescribed Sterile Sodium Chloride (NaCl 0.9%) Flush (5ml-syringe with flush)• Sterile gauze – (to absorb blood spillage)• Sterile, semi-permeable transparent dressing• Sterile plaster/band aid (In case of unsuccessful attempt)
*or equivalent to create a sterile field.	
** As per Standard Precautions the use of a plastic apron and/or face protection should be assessed by each health care worker based on the risk of blood splashing or spraying during the procedure.	
*** Range and type of equipment may vary depending on local organisational policy & the purpose of the cannulation (e.g., an intravenous therapy solution and stand if commencing intravenous therapy).	



4.6.1 Types of Cannulae

Cannulae range in type and size, depending on purpose. The correct size of the cannula will help to prevent damage to the vessel and ensure adequate blood flow. Usually, the smallest size (gauge) for the prescribed therapy is chosen to facilitate better flow and minimise trauma (RCN, 2005 and Scales, 2005). Small veins will not accommodate large volumes or irritant solutions, therefore the purpose of the cannula will determine the appropriate type and size. The nurse and midwife should be familiar with the types of cannulae used in their organisation as outlined in appendix ii.

4.7 The Peripheral Intravenous Cannulation Adults- Procedure

The Peripheral Intravenous Cannulation procedure follows aseptic principles, using a non touch technique. Two attempts ONLY should be made at peripheral intravenous cannulation. If unsuccessful refer to another practitioner. The peripheral intravenous cannulation procedure is outlined in appendix i

4.8 Management of Complications

Specific complications that can arise following the procedure include infiltration, extravasation, venous spasm, phlebitis, thrombophlebitis, haematoma, nerve injury, arterial puncture, embolism and needle stick injury. Children are at greater risk of complications due to the smaller size of their veins and reduced blood flow around the cannula tip (Bravery, 1999). It is critical for the nurse to detect and prevent complications arising and to treat as required. It is especially important for patients who may not be able to verbalise pain. Please see appendix iii for more information on complications.

4.9 Removal of the Peripheral intravenous Cannula

Individual level supervision should be observed according to the patient's cognitive levels and behaviour to prevent accidental removal or dislodgement of the cannula or injury from equipment (Garros et al, 2003). When a peripheral intravenous cannula is no longer in use, it should be removed. Please see appendix iv for Removal of Peripheral Intravenous Cannula.

A peripheral intravenous cannula should be changed every 48-72 hours. (Infection Prevention Society, 2005; Pratt et al., 2007 and RCN, 2005). If there are no signs of infection or if no irritant intravenous solutions are prescribed, the cannula may be kept in place up to 96 hours.

5.0 Documentation

Nursing and midwifery documentation specific to peripheral intravenous cannulation (An Bord Altranais, 2005) should contain the following details:

- Date and time of cannula insertion
- Number of cannulation attempts
- Size of the inserted cannula
- Site of insertion
- Dressing type
- Tolerance of the procedure
- Monitoring of the site
- Date and time of cannula removal
- Management of complications

6.0 Implementation Plan

The Director of Nursing and Midwifery is responsible for the dissemination, implementation and ongoing evaluation and audit of this policy.

7.0 Evaluation and Audit

Evaluation will include a:

- Mechanism for recording, reviewing and acting on adverse peripheral intravenous cannulation incidents.
- System for maintaining practitioner competence.
- Method for identifying further training needs.

Auditing of the insertion, use and maintenance of a peripheral intravenous cannula should be in accordance with the Peripheral Vascular Catheter Care Bundle (HPSC, 2009).



References

- An Bord Altranais (2000) Scope of Nursing and Midwifery Practice Framework. An Bord Altranais: Dublin.
- An Bord Altranais (2000) The Code of Professional Conduct for each Nurse and Midwife. An Bord Altranais: Dublin.
- Bravery, K. (1999) Paediatric Intravenous Therapy in Children. In Dougherty, L. and Lambe, J. Intravenous Therapy in Nursing Practice. Churchill Livingstone: London.
- Dougherty, L. (2008) Peripheral Cannulation. Nursing Standard. 22 (52), 49-56.
- Dougherty, L. & Lister, S. (2009) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 7th Ed. Wiley Blackwell Pub:Chicester
- Franurik, D., Koh, J., L., and Schmitz, M., L. (2000) Distraction Techniques with EMLA: Effects on IV Insertion Pain and Distress in Children. Children's Healthcare. 29 (2), 87-101.
- Garros, D., King, J., Brady-Fryer, B. & Klassen, T., P. (2003) Strangulation with Intravenous Tubing: A Previously Undescribed Adverse Advent in Children. Pediatrics. 111(6), 732-7734.
- Health Protection and Surveillance Centre (2009) Prevention of Intramuscular Catheter Infection in Ireland. HPSC: Dublin
- Health Protection and Surveillance Centre (2009) Peripheral Vascular Catheter Care Bundle HPSC: Dublin.
- Health Service Executive (2008) A Practical Guide to Immunisations. HSE: Dublin
- Health Service Executive (2010) A Guiding Framework for Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives HSE: Dublin
- Infection Prevention Society (2005) Healthcare Associated Infection and Cleanliness: A Tme for Action. British Journal of Infection Control. 6: 5.
- Jamieson, E. et al., (1988) Guideline for Clinical Nursing Practice. Churchill Livingstone: London.
- Pratt, R., J., Pellowe, C., M., and Wilson, J. A., (2007) EPIC 2: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. The Journal of Hospital Infection 655, 51-564. www.sciencedirect.com
- Royal College of Nursing (2003) Restraining, Holding Still and Containing Children and Young People (Guidance for Nursing Staff). Royal College of Nursing: London.
- Royal College of Nursing (2005) Competencies: An Education and Training Competence Framework for Peripheral Venous Cannulation in Children and Young People: Royal College of Nursing: London <http://www.rcn.org.uk/>
- Scales, K. (2005) Vascular Access: A Guide to Peripheral Venous Cannulation. Nursing Standard. 19 (49) pp. 48-52
- Shields, L., Pratt, J. and Hunter, J. (2006) Family-Centred Care: A Review of Qualitative Studies. Journal of Clinical Nursing, 15: 1317 – 1323

Resources

- An Bord Altranais (2002) Recording Clinical Practice Guidance to Nurses and Midwives An Bord Altranais: Dublin
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. Dublin: An Bord Altranais. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2007) Guidance to Nurses and Midwives on Medication Management An Bord Altranais: Dublin.
- An Bord Altranais (2007) Requirements and Standards for Post-Registration and Continuing Competence Nursing and Midwifery Education Programmes-Incorporating the National Framework of Qualifications. An Bord Altranais: Dublin
- Ayliffe, G., A., J., Fraise, A., P., Geddes, A., M. and Mitchel, K. (2000) Control of Hospital Infection, A Practical Handbook. 4th ed. Arnold: London
- Brooker, C. (2003) Human Structure & Function. Mosby: London.
- Camp-Sorrell, D. (1998). Developing Extravasation Protocols and Monitoring Outcomes. J Intrav Nurs. 21(4) 232-238.
- Collins, M., Dougherty, L., de Verteuil, A. and Morris, W. (2005) A Structured Learning Programme for Venepuncture and Cannulation. Nursing Standard. 20(26), pp. 34-40
- Department of Health and Children (2005) The Prevention of Transmission of Blood-Borne Diseases in the Health-Care Setting: <http://www.dohc.ie/>
- Golder, M., Chan, C. L., O Shea, S., Corbett, K., Chrvtie, I., L. and French, G. (2000) Potential Risk of Cross Infection During Peripheral Venous Access by Contamination of Tourniquets. The Lancet, 355, (9197), 44 (111).
- Hankins, J., Walsman Lonsway, R., A., Hedrick, C. & Perdue, M. (2001) Infusion Therapy in Clinical Practice. 2nd ed. WB Saunders Company: Philadelphia.
- Health Information and Quality Authority (2008) National Hygiene Services Quality Review Standards and Criteria: <http://www.higa.ie/>
- Health Information and Quality Authority (2009) National Standards for the Prevention and Control of Health Care Associated Infections. HIQA: Dublin
- Health Service Executive. (2001) Health Protection Surveillance Centre. The Strategy for the Control of Antimicrobial Resistance in Ireland: <http://www.ndsc.ie/>
- Health Service Executive (2005) Strategy for the Control of Antimicrobial Resistance in Ireland-Guidelines for Hand Hygiene in Irish Health Care Settings. HSE: Dublin. www.hpsc.ie/
- Health Service Executive (2005) The Control and Prevention of MRSA in Hospitals and in the Community: A Strategy for the Control of Antimicrobial Resistance in Ireland. Health Protection Surveillance Centre. <http://www.ndsc.ie/>
- Health Service Executive (2007) Infection Control Action Plan. http://www.hse.ie/eng/newsmedia/2007_Archive/June_2007/_HSE_committed_to_tackling_MRSA.html



- Health Service Executive (2007) Quality & Risk Management Standards.
- Health Service Executive (2007) Risk Management in the HSE: An Information Handbook
- Health Service Executive (2007) The Prevention and Control of Health Care Associated Infections in Ireland. HSE: Dublin
- Health Service Executive (2008) Findings from the Survey of Venepuncture and Intravenous Cannulation Education and Training Among Nurses and Midwives Employed within the Republic of Ireland. Dublin: Stationary Office.
- Health Service Executive (2009) Infection Control E Learning Module: <http://www.hseland.ie/>
- Health Service Executive South Eastern Area (2007) Guidelines for Nursing/Midwifery Staff Undertaking Peripheral Intravenous Cannulation and/or Venepuncture in Children. Health Service Executive South Eastern Area.
- Ingram, P. & Lavery, I. (2007) Peripheral Intravenous Cannulation: Safe Insertion and Removal Technique. Nursing Standard. 22 (1), 44-50.
- Intravenous Nursing Society (2000) Infusion Nursing: Standards of Practice. J. Intravenous Nurs. 23 (65):S1-S87.
- INS (2008) Infusion Therapy in Clinical Practice. Infusion Nurses' Society (INS) Massachusetts. <http://www.ins1.org>
- Jackson, A. (1998) A Battle in Vein: Infusion Phlebitis, Nursing Times 94 (4), 66-71.
- Lavery, I. (2003) Peripheral Intravenous Cannulation and Patient Consent. Nursing Standard. 17 (28) 40-42.
- Lillystone, R. (1999) Easing the Pain. Nursing Standard. 19 (41), 67-68.
- Masoorli, S. (2002) Catheter Related Nerve Injury: Inherent Risk or Avoidable Outcome? Journal of Vascular Access Devices. 7 (4) 49.
- Millam, D., A. (2003) On the Road to Successful IV Starts. Nursing. (5)
- Moore, K., L., and Dalley, A., F. (2009) Clinically Oriented Anatomy. 6th Edn Lippincott Williams and Wilkins: New York.
- National Health Service Education for Scotland (2004) Transferring the Skills: A Quality Assurance Framework for Venepuncture, Cannulation and Intravenous Therapy: <http://www.nes.scot.nhs.uk/>
- National Health Service of United Kingdom, National Patient Safety Agency: <http://www.npsa.nhs.uk/>
- National Health Service of United Kingdom, The Health and Safety Executive: <http://www.hse.gov.uk/>
- National Health Service of United Kingdom, The Medicines and Healthcare Products Regulatory Agency: <http://www.mhra.gov.uk/>.
- National Institute of Health Pain Consortium (2007) Pain Intensity Scales. www.painconsortium.nih.gov/pain_scales/index.html
- Nentwich, P., F. (1990) Intravenous Therapy. Jones and Barlett: Massachusetts.
- Philips, L. (2005) Manual of IV Therapeutics, 4th Ed F. A. Davis: Philadelphia.
- Royal College of Nursing (2005) Informed Consent in Health and Social Care Research. Royal College of Nursing: London.
- Scales, K. (2005) Vascular Access: A Guide to Peripheral Venous Cannulation. Nursing Standard. 19 (49) pp. 48-52
- Tortora, G., L. and Grabowaki, S., R. (2003) Principles of Anatomy and Physiology. Harper Collins College Publications: New York
- Weinstein, S., M (2008) Plumer's Principles and Practice of Intravenous Therapy. 8th Ed. J.B. Lippincott Company: Philadelphia

Appendix i

Peripheral Intravenous Cannulation Procedure - Adult

The peripheral intravenous cannulation procedure follows aseptic principles using a non touch technique.

Aseptic non touch technique should be used when inserting a peripheral venous cannula. This means that the following key parts must only be touched by sterile items:

- All parts of the cannula except the outer protective shield and outer housing section
- Tip of leur lock
- Tips of extension set (if used)
- Tip of syringe
- Shaft and tips of needle used for flush
- Section of gauze that is in contact with cannula
- Side of dressing in contact with cannula

In undertaking the procedure, it is important that only the equipment required is brought to the bedside. This is to ensure that cross-contamination does not occur, increasing the risk to other patients.

Equipment required should be based on an assessment of the patient and the purpose of the peripheral intravenous cannulation and includes:

Peripheral Intravenous Cannulation - Adult - List Of Equipment	
<ul style="list-style-type: none"> • A clean & disinfected dressing trolley • *Sterile dressing pack • Sharps container • Disposable non sterile sheet (optional-in case of blood spillage) • **Personal Protective Equipment (e.g. 2 pairs of well-fitting non-sterile gloves, protective plastic apron, safety goggles /visor/mask with eye shield) • Skin Disinfectant: 70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available • Alcohol Hand rub/gel 	<ul style="list-style-type: none"> • ***Intravenous Cannula (Choose size appropriately) • Topical anaesthetic agent (if prescribed) • Clean tourniquet • Extension set if required • –IV Leurlock Cap/Bung • Pre prepared syringe with prescribed Sodium Chloride (NaCl 0.9%) flush or 5ml Syringe with 5ml ampoule of Sterile prescribed Sodium Chloride 0.9% • Sterile gauze – (To absorb blood spillage) • Sterile, semi-permeable transparent dressing • Sterile plaster/band aid (In case of unsuccessful attempt)
* or equivalent to create a sterile field.	
** As per Standard Precautions the use of a plastic apron and/or face protection should be assessed by each Health Care Worker based on the risk of blood splashing or spraying during the procedure.	
***Range and type of equipment may vary depending on local organisational policy & the purpose of the cannulation (e.g., an intravenous therapy solution and stand if commencing intravenous therapy).	



Peripheral Intravenous Cannulation - Adult

Prior to the Peripheral Intravenous Cannulation Procedure

- Confirm indication for the procedure
- Disinfect a clean trolley, using 70% alcohol or equivalent as per local guidelines
- Collect the appropriate equipment, inspect it's integrity and check expiry dates

At the Bedside

- Carry out hand hygiene for a minimum of 15 seconds
- Confirm patient's identification
- Explain the procedure, check for allergies, discuss pain relief
- Obtain informed consent
- Ensure the patient is in a comfortable position
- Apply the tourniquet (5/6cms above the chosen site) and tighten slowly
- Ask the patient to open/close their fist or place arm below heart level to encourage venous filling
- Palpate the site to check for rebound elasticity -press lightly with two fingers and release
- Choose the appropriate vein
- Release the tourniquet, leaving it in position ready to reapply later

Preparation of site and sterile field

- Carry out effective hand hygiene for a minimum of 15 seconds (Alcohol Hand rub/gel or antiseptic hand wash)
- Open the sterile dressing pack, and add the sterile dressing, appropriate cannula for selected vein and other sterile items onto the sterile field using a non touch technique Attach yellow waste bag to trolley
- Draw up NACL 0.9% flush into syringe using needle or straw. Prime extension set if required. Place syringe on the sterile field but avoid touching any sterile items
- Place disposable non sterile sheet (optional) under the patients arm
- Reapply the tourniquet (Do not leave on for longer than two minutes)
- Disinfect the site using Skin Disinfectant (70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol if available)
- Disinfect in a circular motion from insertion site outwards (5-10cms diameter) and place the used alcohol wipes into the waste bag
- Allow to air dry, do not repalpate the site

Cannula Insertion

- Put on gloves (apron and face protection if applicable)
- Use your non dominant hand to achieve skin traction
- Hold cannula between your thumb and index finger
- Position the introducer facing bevel up
- Insert the cannula directly above the vein, through the skin (angle 10-30 degrees)
- Observe for flashback in the cannula chamber, when the introducer punctures the vein
- Decrease the angle between the needle and the skin
- Advance the cannula a further 2mm along the vein

- Withdraw the introducer slightly and advance the cannula fully into vein
- Gently pull the introducer backwards while holding the cannula in position
- Release the tourniquet
- Holding the sterile gauze by one corner and place under the cannula hub (to absorb blood spillage). Ensure only section of gauze that is sterile is in touch with hub
- Apply digital pressure above the cannula tip and remove the introducer and into the sharps bin
- Connect the leurlock cap or primed extension set to the cannula hub
- Flush with Sodium Chloride (NaCL 0.9%) to confirm patency
- Discard the blood contaminated gauze into the yellow waste bag
- Secure and anchor the cannula with a sterile, transparent, semi permeable dressing
- Remove disposable sheet, gloves and disposable eye protection (if applicable) and place in yellow waste bag Carry out effective hand hygiene for a minimum of 15 seconds
- Apply alcohol hand rub/gel, allow to dry

After Care

- Inform the patient of potential complications and advise to report same
- Ensure the patient is in a comfortable position and reassure
- Document the procedure, communicate and inform relevant staff
- Apply gloves and bring trolley with used items to the dirty utility room
 - o Dispose of healthcare risk and non risk waste appropriately
 - o Clean and disinfect the trolley
 - o Clean and disinfect reusable visor if used as per manufacturer's instructions
 - o Remove gloves and apron and carry out appropriate hand hygiene



Appendix ii

Types of Cannulae

Peripheral Intravenous Cannula Types

Equipment required should be based on an assessment of the patient and is as follows:

Cannula Types – Adults		
Yellow/Lime	Purpose: Gauge Size: Flow Rate (Litre per 24Hr): Volumes:	Patients with Frail Veins 24G 1 litre Small
Blue	Purpose: Gauge Size: Flow Rate (Litre per 24 Hr): Volumes:	Patients with Small Veins 22G 1-2 litres Small (maintenance fluids in the elderly)
Pink	Purpose: Gauge Size: Flow Rate (Litre per 24Hr): Volumes:	Intravenous Fluids, Blood Transfusion 20G 2-3 Litres Medium
Green	Purpose: Gauge Size: Flow Rate (Litre per 24Hr): Volumes:	Blood Transfusions and Large Volume Replacement Fluids 18G 2-5 Litres Large
Grey	Purpose: Gauge Size: Flow Rate (Litre per 24 Hr): Volumes:	Theatre Use, Emergency Use, Rapid Fluid Replacement 16G 7-11 Litres Extra Large
Orange/Brown	Purpose: Gauge Size: Flow Rate (Litre per 24Hr): Volumes:	Theatre Use, Emergency Use, Rapid Fluid Replacement 14G 10-16 Litres Maximum Size

Appendix iii

Management of Complications

Potential Complications of Peripheral Intravenous Cannulation

Infiltration	Infiltration is the inadvertent administration of a non-vesicant (non irritant) solution or medication into surrounding tissue (Wong, 2007).
Cause	<ul style="list-style-type: none"> Peripheral intravenous cannula occlusion or misplacement causing fluid to infiltrate the tissues. When a peripheral intravenous cannula is difficult to flush, trauma to the vessel wall can occur, which weakens the wall and increases the probability of infiltration from leakage
Signs	<ul style="list-style-type: none"> Swelling and oedema, pain, loss of mobility or reluctance to move the affected limb Discolouration and coolness of site adjacent to cannula. It can be measured according to the infiltration scale
Prevention	<ul style="list-style-type: none"> Regular monitoring (hourly) of cannula site helps prevent infiltration. Ensure the cannula is secured correctly
Treatment	<ul style="list-style-type: none"> Immediately remove the cannula Apply an appropriate dressing Administer analgesia as prescribed

Extravasation	Extravasation is the inadvertent administration of a vesicant (irritant) solution or medication into surrounding tissue (Wong, 2007).
Cause	<ul style="list-style-type: none"> Leakage of vesicant solutions into the tissues. Examples of vesicant solutions are Dextrose 10%, Total Parenteral Nutrition, Calcium, Potassium Chloride (KCL high doses) and chemotherapy
Signs	<ul style="list-style-type: none"> Pain Reluctance to move affected limb Blistering, burning sensation, ischemia, necrosis and tissue sloughing
Prevention	<ul style="list-style-type: none"> Early detection and immediate action is crucial, with at least hourly monitoring of the cannulation site Ensure the cannula is secured correctly
Treatment	<ul style="list-style-type: none"> Immediately remove the cannula and apply an appropriate dressing. Administer analgesia as prescribed Consult with medical personnel about specific solutions and their treatment



Venous Spasm	Venous spasm is a sudden involuntary contraction of the vein, resulting in temporary cessation of blood flow in the vein.
Cause	<ul style="list-style-type: none"> • Venous spasm is caused by fear and anxiety and is usually stimulated by cold infusates, and mechanical or chemical irritation
Signs	<ul style="list-style-type: none"> • Expressions of pain • Cramping • Numbness above the infusion site
Prevention	<ul style="list-style-type: none"> • Explain the procedure to reduce fear and anxiety • Give infusions at room temperature (commence infusions slowly)
Treatment	<ul style="list-style-type: none"> • Gently massage or warm the limb and retry • Slow down the process of cannulation (there is no need to remove the cannula) • Wait for the vein to relax and wait for blood to return into the flash chamber before proceeding • During intravenous therapy, reduce the rate of infusion flow, especially in solutions known to be irritant

Phlebitis	Phlebitis is an acute inflammation of the intima of a vein (Dougherty, 2008).
Cause	<ul style="list-style-type: none"> • Mechanical phlebitis: vein irritation caused by too large a cannula, a fast rate of infusion, excessive bending of the arm or manipulation of the cannula • Chemical phlebitis: can be caused by medications or solutions (acid or alkaline). Risk of phlebitis increases with an abnormal pH • Bacterial/Septic phlebitis: introduction of an infectious agent at the cannula site; migration of common skin organisms through the cannula
Signs	<ul style="list-style-type: none"> • Expressions of pain • Loss of mobility or reluctance to move the affected limb • Redness, inflammation, or purulent ooze at the cannula site
Prevention	<ul style="list-style-type: none"> • Early detection is crucial, with at least one hourly monitoring of the cannulation site. If vesicant solutions are infusing, increase the monitoring of the site
Treatment	<ul style="list-style-type: none"> • Stop the infusion and remove the cannula • Assess the degree of phlebitis (Phlebitis Score - Jackson, 1998) • Take a swab of the site for culture and sensitivity • Clean and apply a dressing, to the affected area and administer analgesia as prescribed • Report the incident of this complication • Treat as prescribed and document the care given

Thrombophlebitis	Thrombophlebitis is the inflammation of a vein with a thrombus formation.
Cause	<ul style="list-style-type: none"> • Traumatic cannulation by an unskilled practitioner or multiple attempts • Use of too large a cannula for the size of the vein • Infusion of high pH solution or poor circulation with venous stasis
Signs	<ul style="list-style-type: none"> • Local redness, hard and torturous feel of the vein, heat, painful to touch or move • Expressions of pain
Prevention	<ul style="list-style-type: none"> • Early detection is crucial with at least one hourly monitoring of the cannulation site • Appropriate site selection • Appropriate selection of equipment for size of vein • Skilled technique
Treatment	<ul style="list-style-type: none"> • Discontinue infusion, remove the cannula, and elevate the extremity • Report the incident of this complication as per local organisational policy • Treat as prescribed and document the care

Haematoma	Haematoma is the formation of a painful and hard swelling at the site of the cannula.
Cause	<ul style="list-style-type: none"> • Infiltration of fluid into the tissue at the site of the cannula, resulting in the formation of a painful and hard swelling • Inappropriate use of a small fragile vein, or too large a needle • Excessive probing to find the vein • Removing the needle prior to releasing the tourniquet • The needle going all the way through the vein • The needle only partially entering the vein, allowing leakage
Signs	<ul style="list-style-type: none"> • Expressions of pain, loss of mobility or reluctance to move the affected limb • Swelling, discolouration or coolness of the area adjacent to the cannula
Prevention	<ul style="list-style-type: none"> • Selection of appropriate equipment for the size of the vein • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, remove the cannula and apply pressure until haemostasis has been achieved • Elevate the limb and apply a cool compress if necessary, avoiding an ice burn. • Apply a pressure dressing if bleeding is persistent • Explain what has happened and request that staff are informed if the area becomes more painful as the haematoma may be pressing on a nerve • Do not reapply the tourniquet to the affected limb • Request a medical review, if required • Monitor, treat as prescribed and document in the nursing care plan • Report the occurrence of this complication, as per local organisational policy



Nerve Injury	Nerve injury is an inadvertent injury to the nerve.
Cause	<ul style="list-style-type: none"> • Inappropriate selection of the cannulation site • Poor technique
Signs	<ul style="list-style-type: none"> • Pain described as an 'electrical shock' or a 'pins and needles' sensation • Loss of mobility or reluctance to move the affected limb
Prevention	<ul style="list-style-type: none"> • Appropriate clinical assessment • Appropriate site selection • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, remove the cannula and apply gentle pressure • Explain and reassure the patient about what has occurred • Advise that any symptoms of altered sensation may persist for a few hours • Arrange a medical review, if required • Monitor, treat as prescribed and document in the nursing care plan • Finally, report the occurrence of this complication, as per local organisational policy

Arterial Puncture	The inadvertent puncture of the artery is another complication associated with cannulation.
Cause	<ul style="list-style-type: none"> • Inappropriate selection of the cannulation site • Poor technique
Signs	<ul style="list-style-type: none"> • Presence of bright red blood • Expressions of pain
Prevention	<ul style="list-style-type: none"> • Appropriate clinical assessment • Appropriate site selection • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, removing the cannula immediately and apply pressure until haemostasis has been achieved • Explain and reassure regarding what has happened • Request that a member of staff is informed if bleeding recurs from the puncture site, if pain continues or if there is increasing swelling or bruising • Arrange a medical review • Monitor, treat as prescribed and document in the nursing care plan • Report the occurrence of this complication, as per local organisational policy

Embolism	An embolism is an air bubble, fat particle or blood clot which travels, causing a blockage in the vein.
Cause	<ul style="list-style-type: none"> • An embolism occurs when an air bubble, fat particle, or blood clot becomes detached and is carried by the venous flow to the heart and potentially into the pulmonary circulation.
Signs	<ul style="list-style-type: none"> • Pain • Shortness of breath • Collapse • Shock
Prevention	<ul style="list-style-type: none"> • Embolism can be prevented by stopping air from entering the system, ensuring that all connections are secure, careful flushing and by securing the cannula adequately
Treatment	<ul style="list-style-type: none"> • Call for urgent medical attention and treat as prescribed

Needle Stick Injury	A needle stick injury (percutaneous inoculation injury) is an inadvertent puncture of the skin with a potentially contaminated needle.
Cause	<ul style="list-style-type: none"> • Inadvertent puncture of the skin during the cannulation procedure
Signs	<ul style="list-style-type: none"> • Pain • Bleeding • A visible puncture of the skin of the nurse or midwife
Prevention	<ul style="list-style-type: none"> • The application of Infection Prevention & Control and Health and Safety Policy will support safe practice
Treatment	<ul style="list-style-type: none"> • Encourage the wound to bleed freely (do not suck the wound) • Wash the affected area with liquid soap under running water • Apply a waterproof dressing over the affected area • Report the incident to your line manager • Record the incident accordingly by completing the relevant incident form • Submit the incident form to your risk manager or line manager • For follow-up and advice, contact your Occupational Health Dept and/or the Accident and Emergency Dept as per local organisational policy

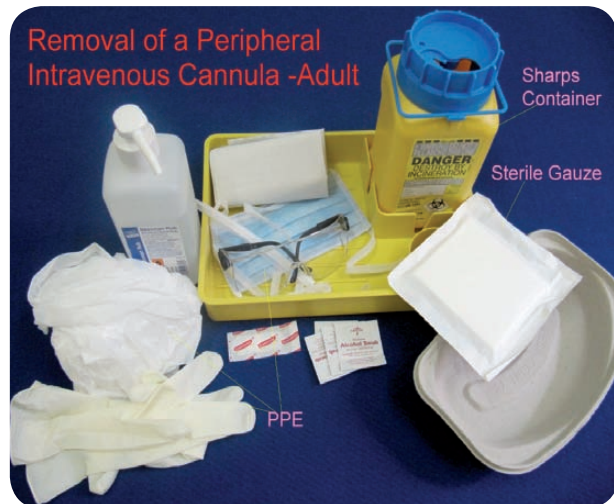


Appendix iv

Removal of a Peripheral Intravenous Cannula

List of Equipment

- A clean clinical tray
- Small kidney dish for Healthcare Risk Waste (placed in tray) or use clinical tray with 2 integrated compartments (one to be used for waste)
- Disposable non sterile sheet (optional in case of blood spillage)
- *Personal Protective Equipment (PPE) e.g. 2 pairs of well-fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield
- Adhesive remover/spray/cleanser
- Sterile gauze
- Sterile waterproof plaster or dressing



* As per Standard Precautions, the use of a plastic apron and/or face protection should be assessed by each Health Care Worker based on the risk of blood splashing or spraying during the procedure

Prior to Procedure

- Confirm indication for removal of peripheral intravenous cannula
- Disinfect a clean clinical tray using 70% alcohol (or equivalent as per local guidelines)
- Collect the appropriate equipment and inspect it's integrity

At the Bedside

- Carry out hand hygiene for a minimum of 15 seconds
- Check patient's identification
- Explain the procedure, check for allergies to dressings and obtain informed consent to remove the cannula
- Open the sterile gauze and sterile dressing using the packaging as a sterile field
- Ensure the patient is in a comfortable position
- Examine the peripheral intravenous cannulation site and surrounding area for signs of infection or infiltration

Preparation

- Stop intravenous infusion if in place
- Apply gloves, (apron and eye protection if required)
- Remove the outer dressing, using adhesive remover if necessary and place in kidney dish or compartment in clinical tray for waste
- Remove the taping from around the cannula and place in kidney dish or compartment in clinical tray for waste

Cannula Removal

- Slowly remove the cannula. With sterile gauze, apply gentle pressure as the cannula tip is removed
- Inspect the cannula length and integrity on removal
- Place cannula into kidney dish or compartment in clinical tray for waste
- Maintain gentle pressure to peripheral intravenous site and hold in place for two to three minutes
- Inspect Peripheral intravenous cannulation site for evidence of infection or inflammation
- Apply sterile gauze dressing or sterile plaster
- Remove gloves and eye protection if applicable and place in the clinical tray
- Carry out effective hand hygiene for a minimum of 15 seconds (Alcohol hand rub/gel)

After Care

- Inform the patient of possible complications and advise to report same
- Ensure the patient is in a comfortable position and reassure
- Document the procedure, communicate and inform relevant staff
- Apply gloves and bring tray with used items to the dirty utility
 - o Dispose of healthcare risk and non risk waste appropriately
 - o Clean and disinfect the clinical tray and kidney dish if reusable
 - o Clean and disinfect reusable eye shield as per manufacturer's instructions if applicable
 - o Remove gloves and apron if applicable and carry out appropriate hand hygiene
- Organise for reinsertion of peripheral intravenous cannula if required





Appendix xv

National Clinical Policy and Procedural Guideline for Nurses and Midwives undertaking Peripheral Cannulation in Children



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1.0 Introduction

1.1 Policy Statement

It is the policy of the HSE that registered nurses and midwives, within the Health Service Executive (HSE), undertaking peripheral intravenous cannulation must have successfully achieved competence having completed an education programme that is compliant with the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010). In addition, nurses and midwives undertaking peripheral intravenous cannulation will do so in accordance with the procedural elements as outlined in this policy.

1.2 Purpose

The purpose of this policy is to:

- Outline the roles and responsibilities of the clinical line manager and the nurse or midwife undertaking the skill of peripheral intravenous cannulation
- Set out procedures based on best evidence, aligned with the national HSE standardised approach, which safeguard the child and guide the nurse or midwife in the performance of peripheral intravenous cannulation
- Aid in the preparation and support of children and their families while undergoing peripheral intravenous cannulation procedures

1.3 Scope

This policy applies to all nurses and midwives working with children, who have successfully completed the required education, training and competence assessment to carry out peripheral intravenous cannulation.

1.4 Disclaimer

The information contained within this policy is the most accurate and up to date, at date of approval. The policy contains a procedural guideline for local adaptation and it is the responsibility of the local organisation, to update this guideline, according to best practice.



2.0 Glossary of Terms

Aseptic Technique:

Aseptic technique is implemented during any invasive procedure that bypasses the body's natural defences e.g. the skin or when handling equipment such as peripheral intravenous cannulae. This technique is used to reduce the potential problem of introducing pathogenic micro organisms into the body when the integrity and /or effectiveness of the natural body defences has been reduced.

(Jamieson et al, 1988, Dougherty and Lister, 2009)

Assessor:

An assessor is an identified nurse or midwife, who has undertaken a similar educational and clinical programme and is a competent expert practitioner. It is recommended that nurses and midwives develop their competence within specific disciplines, according to their practice.

Cannula:

A cannula is a short and flexible tube, containing a needle, or introducer, which pierces the peripheral vein, to provide access to the vascular circulation for the administration of intravenous fluids and medications.

Child:

The term child refers to neonate, infant, child and adolescent under the age of 18 years of age unless otherwise indicated.

Competence:

The ability of the registered nurse or midwife to practice safely and effectively fulfilling his/her professional responsibility within their scope of practice.

(An Bord Altranais, 2000)

Family Centred

Care:

A way of caring for patients and their families within health services which ensures that care is planned around the whole family, not just the individual patient and in which all the family members are recognised as care recipients.

(Shields et al., 2006)

Nurse:

A nurse is a person registered in the Live Register of Nurses as provided for in Section 27 of the Nurses Act 1985 and includes a midwife and nursing includes midwifery – Code of Professional Conduct for each Nurse and Midwife.

(An Bord Altranais, 2000)

Parent or

Legal Guardian:

The term parent or Legal Guardian is used to describe the parent and or legal guardian of the child who is under 16 years.

(A Practical Guide to Immunisations – HSE, 2008)

Peripheral Intravenous

Cannulation:

Peripheral intravenous cannulation is the introduction of a short, flexible hollow plastic tube or cannulae containing a needle (introducer), into a peripheral vein to: provide access to the vascular circulation, for the administration of fluids and medications.

(Dougherty, 2008 and Scales, 2005)



3.0 Roles and Responsibilities

3.1 Role and Responsibility of the Clinical Line Manager

It is the responsibility of the clinical nurse or midwife manager or line manager to ensure that nurses and midwives, working with children, who are undertaking peripheral intravenous cannulation fulfil the following criteria. Nurses and midwives must:

- Be registered on the live register of nurses and midwives maintained by An Bord Altranais
- Be employed by the HSE
- Be approved by their Clinical Nurse or Midwife Manager as an appropriate person to expand their practice, to include Peripheral intravenous cannulation
- Be a Registered Nurse or Midwife with at least two years post registration experience of working with children
- Be employed in an area where peripheral intravenous cannulation is required to enhance service provision
- Successfully complete an education and training programme in the Management and Administration of Intravenous Medication
- Successfully complete the educational preparation and competence assessment provided by this organisation, that is compliant with or equivalent to that outlined in the HSE Guiding Framework for the Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives (2010)

3.2 Role and Responsibility of the Nurse and Midwife

It is the responsibility of each registered nurse and midwife to:

- Work within their Scope of Practice -Scope of Practice Framework for Nurses and Midwives, (An Bord Altranais, 2000)
- Comply with this organisation's peripheral intravenous cannulation policy and procedures therein, when undertaking peripheral intravenous cannulation
- Be competent in the skill of peripheral intravenous cannulation and the equipment specific to the procedure
- Be familiar and comply with local organisational infection prevention and control, health and safety procedures and risk management policies as they apply to peripheral intravenous cannulation
- Develop competence, specific to the needs of the service and patient group. The Royal College of Nursing RCN (2005) and the HSE recommend that registered nurses who are working with children develop their competencies within the following age groups:
 - Neonates
 - 0-1 Year Old
 - 1-5 Year Old
 - 5 Years and above

4.0 Procedural Guideline for Peripheral Intravenous Cannulation for Children

4.1 Indications for the Peripheral Intravenous Cannulation Procedure

The indications for peripheral intravenous cannulation in children are to:

- Provide intravenous hydration and/or correction of pre-existing dehydration or electrolyte imbalance
- Administer:
 - o intravenous drug therapy
 - o intermittent, continuous or bolus medications
 - o blood components and blood products
 - o an opaque medication and/or a diagnostic reagent to assist with diagnosis
- Facilitate intravenous access as required to enhance patient care
- Provide parenteral nutrition when the central route is unavailable

4.2 Considerations for the Insertion of a Peripheral Intravenous Cannula

- Peripheral intravenous cannulation is an invasive and traumatic procedure and is ordered only for the administration of treatment to the child
- The peripheral intravenous cannulation procedure should not be ordered for routine phlebotomy
- A clinical assessment of the child should be undertaken prior to the insertion of a peripheral intravenous cannula
- Peripheral intravenous cannulation should be carried out as close to the time of use to reduce the risk of accidental dislodgement and related complications
- Where peripheral intravenous access is poor and cannulation is difficult, alternative methods of access should be considered and discussed with the appropriate medical team
- Peripheral intravenous cannulation is regarded as a minor surgical procedure and is carried out with a high standard of hand hygiene, site preparation and maintenance
- "Children First -National Guidelines for the Protection and Welfare of Children" (Department of Health & Children, 2009) should be adhered to
- A peripheral intravenous cannula should not be sited in close proximity to another cannula
- If two cannulae are in close proximity they should be secured with separate dressings



4.3 Preparation for Procedure

4.3.1 Informed Consent

Informed consent should be obtained from the child and/or parent/legal guardian prior to the procedure and as per local organisational policy. Informed consent is obtained from the parent/legal guardian or next of kin in the following circumstances:

- if a child is under the age of consent (16 years)
- if the child does not have the cognitive ability to understand or make an informed decision

If the parents and/or child do not speak English, arrangements should be made to ensure the procedure is understood and the consent is valid. The child should be involved in the decision making process and be given adequate information and explanation.

4.3.2 Clinical Holding

Minimal restraint and holding should be used for the peripheral intravenous cannulation procedure. Restraint used should be appropriate to age, cognitive ability and behavior of the child. Please refer to local organisational policies on clinical holding and the restraining of children. For further information please read "Restraining, Holding Still and Containing Children and Young People -Guidance for Nursing Staff" (Royal College of Nursing, 2003) and "Children First -National Guidelines for the Protection and Welfare of Children" (DOHC, 2009).

4.3.3 Psychological, Pharmacological and Non Pharmacological Methods of Pain Relief

Anxiety associated with cannulation can be reduced by good communication skills, diversion, distraction and relaxation techniques. Children's previous experiences with cannulation should also be taken into consideration and measures applied that previously relieved pain and anxiety (Lavery, 2003). The need for local anaesthetic agents prior to peripheral intravenous cannulation should be decided on an individual basis (Scales, 2005). Please see appendix i for more information on psychological, pharmacological and non pharmacological methods of pain relief.

4.3.4 Topical Anaesthetic Agents

Topical anaesthetic agents such as Ametop Gel, EMLA Cream and Ethyl Chloride Spray produce numbness of the skin and have been proven to reduce the pain experienced during the peripheral intravenous cannulation procedure (Dougherty, 2008). Details of topical anaesthetic agents are:

- **Ametop Gel:** Consists of Amethocaine 4% Gel. Indications: Adults and children over 1 month. Application Time: Minimum of 30 minutes prior to procedure. Side Effects: Redness, swelling and itchiness
- **EMLA Cream** (Eutectic mixture of local anaesthetics). Consists of: Lidocaine and Prilocaine 5% Cream. Indications: Adults and children over 1 Year. Application Time: Minimum of one hour prior to procedure. Side Effects: Redness, swelling and itchiness
- **Ethyl Chloride Spray:** Consists of: Ethyl Chloride Spray. Indications: Use if allergic to or if child has poor tolerance or anxiety relating to other agents or occlusive dressings. Suitable in emergency situations due to its immediate action. Application Time: Immediate. Side Effects are extremely rare and include: cutaneous sensitisation, pigmentation. Overexposure can lead to headaches, dizziness, vomiting, loss of co-ordination and disorientation.

Topical anaesthetic agents should be applied to a limited number of locations only, as excessive use of agent can be harmful when absorbed (Scales, 2005 and Franurik et al., 2000). Infants should be supervised when agents are applied in case of accidental ingestion. Topical anaesthetic agents must be prescribed on an individual basis and be used according to the manufacturer's instructions. Current practice does not advocate the application of any anaesthetic agents for neonates, instead sucrose/glucose may be used for babies over 32 weeks gestation as prescribed.



4.4 Vein Selection in Children

Choosing the correct vein is important. When selecting the appropriate site for venepuncture, it is best practice to begin in the most distal aspect of the vein. This allows for further attempts above the selected vein which will not have been impeded. When cannulating children, the specific advantages and disadvantages of potential venous sites must be considered. These are outlined below:

Veins	Location	Advantages and Disadvantages
The Cephalic and Basilic Vein in the Forearm	<p>Cephalic Vein – runs under the skin on the radial side of the forearm</p> <p>Basilic Vein – runs up the ulnar side of the forearm</p>	<p>Advantages</p> <ul style="list-style-type: none"> • Larger veins, more rapid infusion hand can be freely used. Easily located • The first choice of vein for a neonate is a vein on the dorsal surface of the hand <p>Disadvantage of Basilic Vein -</p> <ul style="list-style-type: none"> • It is situated closest to nerves and arteries and caution should be exercised if chosen
Metacarpel Veins in the Dorsal Venous Network	- on the dorsum of the hand	<p>Advantages</p> <ul style="list-style-type: none"> • First choice of vein for neonates • Ideal for long term therapy • Splinted by metacarpal bones <p>Disadvantages</p> <ul style="list-style-type: none"> • Difficult to secure • Flow affected by wrist Movement
Median Cubital Vein in the Antecubital Fossa	- situated in the antecubital fossa in the elbow	<p>Advantages</p> <ul style="list-style-type: none"> • Well supported by subcutaneous tissue (prevents vein rolling under needle) • Deeper and more tolerant to irritant substances <p>Disadvantages</p> <ul style="list-style-type: none"> • Difficult to locate in children with increased subcutaneous fat • Restricted movement, flexion of the arm can interfere with flow of infusion

Children may also require peripheral intravenous cannulation in either the **leg, foot**, or in the **scalp**. These are not very common sites and should only be carried out by suitably trained personnel when all other sites are inaccessible.

4.5 Clinical Assessment

A clinical assessment should be carried out by the nurse or midwife prior to the peripheral intravenous cannulation procedure. Consideration must be given to the child's developmental, cognitive and mobility needs when selecting a site. A Four Step Approach to the clinical assessment is outlined as follows:

Four Step Approach to Clinical Assessment

Check

- The indication for peripheral intravenous cannulation
- If intravenous medication or fluids could be given by any other route i.e.
 - Is this the last dose of antibiotics?
 - Is the child or neonate almost on full feeds?
- Purpose, duration and rate of the intravenous infusion
- The clinical condition (acute/ chronic/emergency) of the child
- Type of intravenous fluid or medication to be administered via the vein
- Location and length of the vein
- Condition of the vein (visual and palpation)
- Area is warm prior to cannulation procedure (veins constrict if cold, making the procedure more difficult)
- Allergies to medications, topical anaesthetic agents, dressings or plasters
- For needle phobia
- Previous history of difficult peripheral intravenous cannulation procedures
- For history of blood borne viruses, bleeding disorders or if receiving anticoagulation therapy

Choose

- Most distal aspect of the vein
- Non dominant hand
- Correct location, avoiding arteries and nerves
- Appropriate equipment to undertake procedure
- Appropriate topical anaesthetic agent

Avoid

- Hard, sclerosed, fibrosed, knotty, thrombosed veins or previous cannulation sites
- Areas with increased subcutaneous fat
- Sites with existing intravenous infusions in situ
- Sites that may require peripheral intravenous central catheter (PICC) insertion or arterial monitoring
- Valves in the vein (if visible or palpable)
- Veins in the upper arm in babies less than 28 weeks as this could impede long line insertion
- Thumb sucking hand in children
- Lower extremities sites especially when children have just started walking.

Do Not Use

- Arm with obvious infection or bruising
- Arm with a fracture
- Arm with an arteriovenous (AV) fistula
- Arm affected by a cerebro vascular accident
- Arm affected by lymphoedema



4.5.1 Assessment on Transfer of a Child

A child with a peripheral intravenous cannula inserted by a transferring hospital will require assessment of the cannula and the insertion site for inflammation, infiltration, extravasation, infection and leaking or pressure of the cannula on the surrounding tissues. The peripheral intravenous cannula should be flushed on arrival to the hospital with prescribed Sodium Chloride 0.9% flush, applicable to age group. If the cannula is not patent, it should be removed. The safety of tubing/equipment should be checked to avoid accidental strangulation.

4.6 Equipment

The equipment required for the peripheral intravenous cannulation procedure is outlined in each of the peripheral intravenous cannulation procedures in appendix ii and iii.

- Peripheral Intravenous Cannulation Procedure Infant – Appendix ii
- Peripheral Intravenous Cannulation Procedure Child – Appendix iii

Equipment required should be based on an assessment of the child and the purpose of the peripheral intravenous cannulation and includes:

Peripheral Intravenous Cannulation - Child - List Of Equipment

- | | |
|---|--|
| <ul style="list-style-type: none"> • A clean & disinfected dressing trolley • *Sterile dressing pack • Sharps container • Disposable non sterile sheet (optional- in case of blood spillage) • **Personal Protective Equipment (e.g 2 pairs of well-fitting non-sterile gloves, protective plastic apron, safety goggles visor/mask with eye shield) • Skin Disinfectant:
Children (2 months and older) and Adults • 70% impregnated alcohol Wipes or 2% Chlorhexidine in 70% alcohol when supply available • Topical anaesthetic agent (if prescribed) | <ul style="list-style-type: none"> • Alcohol hand rub/gel • ***Intravenous cannula (choose size appropriately) • Clean tourniquet • Sterile steristrips and sterile scissors • T Connector • Ampoule of sterile Sodium Chloride (NaCl 0.9%) Flush (Children-2ml syringe with 2ml flush) • Sterile gauze – (to absorb blood spillage) • Sterile, semi-permeable transparent dressing • Sterile child friendly plaster/band aid (In case of unsuccessful attempt) • Reward as agreed with child and parent e.g. sticker or certificate |
|---|--|

*or equivalent to create a sterile field.

** As per Standard Precautions the use of a plastic apron and/or face protection should be assessed by each healthcare worker based on the risk of blood splashing or spraying during the procedure.

***Range and type of equipment may vary depending on local organisational policy & the purpose of the cannulation (e.g., an intravenous therapy solution and stand if commencing intravenous therapy).

4.6.1 Types of Cannulae

Cannulae range in type and size, depending on purpose. The correct size of the cannula will help to prevent damage to the vessel and ensure adequate blood flow. Usually, the smallest size (gauge) for the prescribed therapy is chosen to facilitate better flow and minimise trauma (RCN, 2005 and Scales, 2005). Small veins will not accommodate large volumes or irritant solutions, therefore the purpose of the cannula will determine the appropriate type and size. The nurse and midwife should be familiar with the types of cannulae used in their organisation as outlined in appendix iv.

4.7 The Peripheral Intravenous Cannulation Procedure

The Peripheral Intravenous Cannulation procedure follows aseptic principles, using a non touch technique. Two attempts **ONLY** should be made at peripheral intravenous cannulation. If unsuccessful refer to another practitioner. The peripheral intravenous cannulation procedure is outlined in appendix ii and iii.

- Peripheral Intravenous Cannulation Procedure Infant – Appendix ii
- Peripheral Intravenous Cannulation Procedure Child – Appendix iii

4.8 Management of Complications

Specific complications that can arise following the procedure include infiltration, extravasation, venous spasm, phlebitis, thrombophlebitis, haematoma, nerve injury, arterial puncture, embolism and needle stick injury. Children are at greater risk of complications due to the smaller size of their veins and reduced blood flow around the cannula tip (Bravery, 1999). It is critical for the nurse to detect and prevent complications arising and to treat as required. It is especially important for children who may not be able to verbalise pain. Please see appendix v for more information on complications.

4.9 Removal of the Peripheral intravenous Cannula

Individual level supervision should be observed according to the child's cognitive levels and behaviour to prevent accidental removal or dislodgement of the cannula and also to avoid strangulation from tubing or injury from equipment (Garros et al., 2003). When a peripheral intravenous cannula is no longer in use, it should be removed. Please see appendix vi for Removal of Peripheral Intravenous Cannula.

A peripheral intravenous cannula should be changed every 48-72 hours. (Infection Prevention Society, 2005; Pratt et al., 2007 and RCN, 2005). If there are no signs of infection or if no irritant intravenous solutions are prescribed, the cannula may be kept in place up to 96 hours. Under extreme circumstances in children, it may be kept in longer and/or as per local organisational policy (Infection Prevention Society, 2005 and Dougherty, 2008).



5.0 Documentation

Nursing and midwifery documentation specific to peripheral intravenous cannulation (An Bord Altranais, 2005) should contain the following details:

- Date and time of cannula insertion
- Number of cannulation attempts
- Size of the inserted cannula
- Site of insertion
- Dressing type
- Tolerance of the procedure
- Monitoring of the site
- Date and time of cannula removal
- Management of complications

6.0 Implementation Plan

The Director of Nursing and Midwifery is responsible for the dissemination, implementation and ongoing evaluation and audit of this policy.

7.0 Evaluation and Audit

Evaluation will include a:

- Mechanism for recording, reviewing and acting on adverse peripheral intravenous cannulation incidents.
- System for maintaining practitioner competence.
- Method for identifying further training needs.

Auditing of the insertion, use and maintenance of a peripheral intravenous cannula should be in accordance with the Peripheral Vascular Catheter Care Bundle (HPSC, 2009).

References

- An Bord Altranais (2000) Scope of Nursing and Midwifery Practice Framework. An Bord Altranais: Dublin.
- An Bord Altranais (2000) The Code of Professional Conduct for each Nurse and Midwife. An Bord Altranais: Dublin.
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- Bravery, K. (1999) Paediatric Intravenous Therapy in Children. In Dougherty, L. and Lambe, J. Intravenous Therapy in Nursing Practice. Churchill Livingstone: London
- Department of Health and Children (2009) Children First National Guidelines for the Protection and Welfare of Children. Department of Health: Dublin
- Dougherty, L. (2008) Peripheral Cannulation. Nursing Standard. 22 (52), 49-56.
- Dougherty, L. & Lister, S. (2009) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 7th Ed. Wiley Blackwell Pub:Chicester
- Franurik, D., Koh, J.,L., and Schmitz, M.,L. (2000) Distraction Techniques with EMLA: Effects on IV Insertion Pain and Distress in Children. Children's Healthcare. 29 (2), 87-101.
- Garros, D., King, J., Brady-Fryer, B. & Klassen, T., P. (2003) Strangulation with Intravenous Tubing: A Previously Undescribed Adverse Advent in Children. Pediatrics. 111(6), 732-7734.
- Health Protection and Surveillance Centre (2009) Peripheral Vascular Catheter Care Bundle HPSC: Dublin.
- Health Service Executive (2008) A Practical Guide to Immunisations. HSE: Dublin
- Health Service Executive (2010) A Guiding Framework for Education, Training and Competence Validation in Venepuncture and Peripheral Intravenous Cannulation for Nurses and Midwives. HSE: Dublin
- Infection Prevention Society (2005) Healthcare Associated Infection and Cleanliness: A Tme for Action. British Journal of Infection Control. 6: 5.
- Lavery, I. (2003) Peripheral Intravenous Cannulation and Patient Consent. Nursing Standard. 17 (28) 40-42.
- Jamieson, E. et al (1988) Guideline for Clinical Nursing Practice. Churchill Livingstone: London.
- Pratt, R., J., Pellowe. C., M., and Wilson. J. A., (2007) EPIC 2: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. The Journal of Hospital Infection 655, 51-564. www.sciencedirect.com
- Royal College of Nursing (2003) Restraining, Holding Still and Containing Children and Young People (Guidance for Nursing Staff). Royal College of Nursing: London.
- Royal College of Nursing (2005) Competencies: An Education and Training Competence Framework for Peripheral Venous Cannulation in Children and Young People: Royal College of Nursing: London <http://www.rcn.org.uk/>
- Scales, K. (2005) Vascular Access: A Guide to Peripheral Venous Cannulation. Nursing Standard. 19 (49) pp. 48-52
- Shields, L., Pratt, J. and Hunter, J. (2006) Family-Centred Care: A Review of Qualitative Studies. Journal of Clinical Nursing, 15: 1317 – 1323



Resources

- An Bord Altranais (2002) Recording Clinical Practice Guidance to Nurses and Midwives An Bord
- An Bord Altranais (2005) Requirements and Standards for Nurse Registration Education Programmes. 3rd Ed. An Bord Altranais: Dublin. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2005) Requirements and Standards for Midwife Registration Education Programmes. 3rd Ed. Dublin: An Bord Altranais. http://www.nursingboard.ie/en/publications_current.aspx?page=1
- An Bord Altranais (2007) Guidance to Nurses and Midwives on Medication Management An Bord Altranais: Dublin.
- An Bord Altranais (2007) Requirements and Standards for Post-Registration and Continuing Competence Nursing and Midwifery Education Programmes-Incorporating the National Framework of Qualifications. An Bord Altranais: Dublin
- Ayliffe, G., A., J., Fraise, A., P., Geddes, A., M. and Mitchel, K. (2000) Control of Hospital Infection, A Practical Handbook. 4th ed. Arnold: London
- Bowden, V., R. & Greenberg, C., S (2007) Pediatric Nursing Procedures. 2nd edn Lippincott Williams & Wilkins: New York.
- Bravery, K. (1999) Paediatric Intravenous Therapy in Children. In Dougherty, L. and Lambe, J. Intravenous Therapy in Nursing Practice. Churchill Livingstone: London.
- Brooker, C. (2003) Human Structure & Function. Mosby: London.
- Broome, M., E. (2000) Helping Parents Support Their Child in Pain. Pediatric Nursing 26(3), 315-317.
- Camp-Sorrell, D. (1998). Developing Extravasation Protocols and Monitoring Outcomes. J Intrav Nurs. 21(4) 232-238.
- Catudal, J., (1999) Pediatric IV therapy: Actual Practice. J Vascular Access Devices 4 (1), 27-29.
- Chamley, C., A., Carson P., Randall, D. and Sandwell, M. (2005) Developmental Anatomy and Physiology of Children, A Practical Approach. Churchill Livingstone: London.
- Collins, M., Dougherty, L., de Verteuil, A. and Morris, W. (2005) A Structured Learning Programme for Venepuncture and Cannulation. Nursing Standard. 20(26), pp. 34-40
- Department of Health and Children (2005) The Prevention of Transmission of Blood-Borne Diseases in the Health-Care Setting: <http://www.dohc.ie/>
- Dougherty, L. (2008) Peripheral Cannulation. Nursing Standard. 22 (52), 49-56.
- Dougherty, L., and Lamb, J. (2008) Intravenous Therapy in Nursing Practice. (2nd edn) Churchill Livingstone: London
- Glasper, A., & Richardson, J. (2006) A Textbook of Children's and Young Peoples Nursing. Churchill Livingstone: London.
- Golder, M., Chan, C. L., O Shea, S., Corbett, K., Chrystie, I., L. and French, G. (2000) Potential Risk of Cross Infection During Peripheral Venous Access by Contamination of Tourniquets. The Lancet, 355, (9197), 44 (111).
- Hankins, J., Walsman Lonsway, R., A., Hedrick, C. & Perdue, M. (2001) Infusion Therapy in Clinical Practice. 2nd ed. WB Saunders Company: Philadelphia.
- Health Information and Quality Authority (2008) National Hygiene Services Quality Review Standards and Criteria: <http://www.higa.ie/>

- Health Information and Quality Authority (2009) National Standards for the Prevention and Control of Health Care Associated Infections. HIQA: Dublin
- Health Service Executive. (2001) Health Protection Surveillance Centre. The Strategy for the Control of Antimicrobial Resistance in Ireland: <http://www.ndsc.ie/>
- Health Service Executive (2005) Strategy for the Control of Antimicrobial Resistance in Ireland- Guidelines for Hand Hygiene in Irish Health Care Settings. HSE: Dublin. www.hpsc.ie/
- Health Service Executive (2005) The Control and Prevention of MRSA in Hospitals and in the Community: A Strategy for the Control of Antimicrobial Resistance in Ireland. Health Protection Surveillance Centre. <http://www.ndsc.ie/>
- Health Service Executive (2007) Infection Control Action Plan. http://www.hse.ie/eng/newsmedia/2007_Archive/June_2007/_HSE_committed_to_tackling_MRSA.html
- Health Service Executive (2007) Quality & Risk Management Standards.
- Health Service Executive (2007) Risk Management in the HSE: An Information Handbook
- Health Service Executive (2007) The Prevention and Control of Health Care Associated Infections in Ireland. HSE: Dublin
- Health Service Executive (2008) Findings from the Survey of Venepuncture and Intravenous Cannulation Education and Training Among Nurses and Midwives Employed within the Republic of Ireland. Dublin: Stationary Office.
- Health Service Executive (2009) Infection Control E Learning Module: <http://www.hseland.ie/>
- Health Service Executive South Eastern Area (2007) Guidelines for Nursing/Midwifery Staff Undertaking Peripheral Intravenous Cannulation and/or Venepuncture in Children. Health Service Executive South Eastern Area.
- Hockenberry, M., J. & Wong, D., L. (2003) Wong's Nursing Care of Infants and Children. 7th ed. Mosby: Philadelphia
- Ingram, P. & Lavery, I. (2007) Peripheral Intravenous Cannulation: Safe Insertion and Removal Technique. Nursing Standard. 22 (1), 44-50.
- Intravenous Nursing Society (2000) Infusion Nursing: Standards of Practice. J. Intravenous Nurs. 23 (65):S1-S87.
- INS (2008) Infusion Therapy in Clinical Practice. Infusion Nurses' Society (INS):Massachusetts. <http://www.ins1.org>
- Jackson, A. (1998) A Battle in Vein: Infusion Phlebitis, Nursing Times 94 (4), 66-71.
- Kleiber, C., Sorenson, M., Whiteside, K., Gronstal, A. & Tannous, R. (2002) Topical Anesthetics for Intravenous Insertion in Children: A Randomized Equivalency Study. Pediatrics. 110 (4) 758-770.
- Krechel, S., W., & Bildner, J. (1995). CRIES: A New Neonatal Postoperative Pain Measurement Score– Initial Testing of Validity and Reliability. Paediatric Anaesthesia 5: 53-61.
- Lillystone, R. (1999) Easing the Pain. Nursing Standard. 19 (41), 67-68.
- Masoorli, S. (2002) Catheter Related Nerve Injury: Inherent Risk or Avoidable Outcome? Journal of Vascular Access Devices. 7 (4) 49.



- Melhuish, S. & Payne, H. (2006) Nurses' Attitudes to Pain Management during Routine Venepuncture in Young Children. Paediatric Nursing. 16(2) 20-22.
- Millam, D., A. (2003) On the Road to Successful IV Starts. Nursing. (5)
- Montgomery, L., A, Hanrahan, K., Kottman. K., Otto, A., Barrett, T., Hermiston, B., (1999). Guideline for IV Infiltrations in Pediatric Patients. Pediatr Nurs 25 (2), 167-180.
- Moore, K., L., and Dalley, A., F. (2009) Clinically Oriented Anatomy. 6th Edn Lippincott Williams and Wilkins: New York.
- National Health Service of United Kingdom, National Patient Safety Agency: <http://www.npsa.nhs.uk/>
- National Health Service of United Kingdom, The Health and Safety Executive: <http://www.hse.gov.uk/>
- National Health Service of United Kingdom, The Medicines and Healthcare Products Regulatory Agency: <http://www.mhra.gov.uk/>.
- National Institute of Health Pain Consortium (2007) Pain Intensity Scales. www.painconsortium.nih.gov/pain_scales/index.html
- Nentwich, P., F. (1990) Intravenous Therapy. Jones and Barlett: Massachusetts.
- Philips, L. (2005) Manual of IV Therapeutics, 4th Ed F. A. Davis: Philadelphia.
- Royal College of Nursing (2005) Informed Consent in Health and Social Care Research. Royal College of Nursing: London.
- Scales, K. (2005) Vascular Access: A Guide to Peripheral Venous Cannulation. Nursing Standard. 19 (49) pp. 48-52
- Tortora, G., L. and Grabowaki, S., R. (2003) Principles of Anatomy and Physiology. Harper Collins College Publications: New York
- Weinstein, S., M (2008) Plumer's Principles and Practice of Intravenous Therapy. 8th Ed. J.B. Lippincott Company: Philadelphia

Appendix i

Psychological, Pharmacological and Non Pharmacological Methods of Pain Relief for Peripheral Intravenous Cannulation in Children

Please refer to local guidelines and policies on pain scales and distraction techniques, pharmacological and non pharmacological methods of pain relief. Pain Scales used when appropriate should be developmentally, physically, emotionally and cognitively suitable for the child.

Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Neonatal	<ul style="list-style-type: none"> Exhibits facial expressions of pain: Brows lowered & drawn together, eyes tightly closed mouth opened & squarish. Cry intensely, loudly, inconsolable Changes in sleep/awake cycles, activity level Exhibit hypersensitivity or irritability Becomes withdrawn unresponsive. <p>Fears and concerns: Totally dependant on parents and other adults for basic needs.</p>	<p>CRIES Pain scale for neonates that uses biophysiological indicators of pain (Krechel & Bildner, 1995).</p>	<ul style="list-style-type: none"> Explain procedure to parents/legal guardian and reason for same and encourage questions. (If the parents do not speak English arrangements must be made according to organisational policy to organise an interpreter). Encourage parental tactile contact and soothing verbal stimuli. Mum can also be encouraged to breastfeed if child does not use a pacifier when appropriate. Ask parents if they wish to be present during the procedure (Duff 2008). 	<ul style="list-style-type: none"> Sucrose and Glucose as prescribed and if neonate is not NPO. Topical anaesthesia is not recommended for neonates. Instead sucrose is used for babies over 32 weeks gestation Oral pacifiers (soothers) over 24 weeks or if mum is breastfeeding encourage same where appropriate. Neonate should be kept warm for procedure (Trigg & Mohammed, 2006)



Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Infants 0-1 year	<ul style="list-style-type: none"> Exhibit facial expressions of pain- brows lowered & drawn together, eyes tightly closed, mouth opened & squarish Cry intensely, loudly, inconsolable Poor oral intake Changes in sleep/awake cycles, activity level. Exhibit hypersensitivity or irritability. Becomes withdrawn unresponsive <p>Fears and concerns: Totally dependant on parents and other adults for basic needs. Trusts that adults will respond to basic needs.</p>	<p>FLACC (Face, legs, arms, cry and consolability Scale) Behavioural assessment scale that uses body movements and sounds to assess: the pain of infant and toddlers (Hockenberry & Wong 2003)</p>	<ul style="list-style-type: none"> Explain procedure to parents and reason for same Encourage parental tactile contact and encourage parent to hold and comfort but not to restrain the child (RCN 2003). Explain to the child regarding that the spray can feel cold. Also explain that Ametop or Emla can be called 'magic cream or gel' as it 'disappears' absorbs when used. 	<ul style="list-style-type: none"> Sucrose and Glucose as prescribed. Application of topical anaesthetic (e.g. Amethocaine 4% Gel Ametop as Emla is not recommended for children under 1 year) (Please refer to manufacturer's guidelines and local organisational guidelines). Infants should be supervised when applied in case of ingestion. Use of ethyl chloride spray. (Davies & Molloy, 2006, Scales, 2008 & Dougherty, 2008). (Please refer to local guidelines, policies and manufactures' instructions) Oral pacifiers (soothers) or if mum is breastfeeding encourage same. May cry for discomfort on being held rather than being in pain.
Toddler (1-3 year)	<ul style="list-style-type: none"> Changed behaviour: Irritability, crying, screaming, unusual posture, unusual quietness Increased clinging, loss of appetite Restlessness, disturbed sleep pattern <p>Fears and concerns: Little fear of danger. Fear of separation from parents. Limited language and understanding of procedure. Threat of immediate pain is overwhelming.</p>	<p>FLACC pain scale: same as above</p>	<ul style="list-style-type: none"> Same as infant. Ascertain from parent common word and for pain (hurt) and ways of alleviating pain. Parents should be encouraged to hold and comfort the child prior, during and after procedure. Encourage parents to decorate cot of child with pictures and toys. Parent may read a story book to child with clinical procedure explained in a child friendly manner (Broome 2000 & Willock et al, 2004). 	<ul style="list-style-type: none"> Application of topical anaesthetic agents or 'magic cream' (e.g. Amethocaine 4% Gel (Ametop Gel) and Lidocaine and Prilocaine 5% (Emla Cream)). Refer to manufacturer's instructions and local organisational guidelines. Toddlers should be supervised when applied in case of ingestion. (Tak & van Bon 2006 & Franurik et al 2000). Be honest with child and let them know that they will feel a little pinch and let them know when they will feel it. Listen to cassettes with music/family voices or child's favourite story/song. Distract child with favourite toy or game. Oral pacifiers (soothers) or if mum is breastfeeding encourage same. Reassure the child that you are only taking a small amount of blood and that they will have sufficient blood left. Ascertain the advice/support of play therapist and psychologist if indicated. The organisation may have Distraction boxes to use for distraction and minimisation of fear 10 minutes prior to the procedure. Such boxes would include carefully selected toys such as bubbles, toys, picture glasses etc (Winskill & Andrews 2008) Child may need sedation as directed by the Doctor if procedure will cause severe distress or has needle phobia.



Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Preschool age children (4-6yr)	<ul style="list-style-type: none"> Able to use more descriptive adjectives and attachments of associated emotions (e.g. sad, painful, mad) <p>Fears and concerns: Greater body awareness. Fear injury to body. Difficult to realise that the pain from the needle will be over quickly. Reassure child that crying is ok.</p>	<p>Wong-Baker Face Rating Scale Suggested age group 4 years and over & older children with different languages. (Hockenberry & Wong 2003)</p>	<ul style="list-style-type: none"> Advised to have parent present to assist with comforting the child and gaining child's cooperation. (If the parents and/or child does not speak English arrangements must be made according to organisational policy to organise an interpreter) Reassure the child that they have done nothing wrong and are not being punished. Parent may read a story book to child with the clinical procedure explained in a child friendly manner. 	<ul style="list-style-type: none"> Same as with toddler. Ascertain what the child likes to play with as this could be used as a distraction technique. Child will have developed magical thinking which can be used for fantasy scenes in guided imagery. Allow child to be involved in the decision making process for procedure. (e.g. choice of vein)
School age children (6-12yr)	<ul style="list-style-type: none"> Clearer differentiation of pain intensity. Beginning to use cognitive coping strategies. Wants explanations of why pain hurts. <p>Fears and concerns: Fear loss of self control. More willing to participate and less dependant on parent. Concerns of pain or procedure limiting current activities rather than future abilities.</p>	<p>Numerical scale rating Child rates pain intensity from 1-10.</p> <p>Wong-Baker Face Rating Scale Can be used for child with different languages. (Hockenberry & Wong 2003 & Trigg & Mohammed 2006)</p> <p>FLACC Pain scales have been proven to be beneficial in this age group. (Nilsson et al 2008)</p>	<ul style="list-style-type: none"> Child may not want parent present. Parents and practitioner can use diagrams models to explain procedure. Encourage parents to bring in child's favourite music and books. 	<ul style="list-style-type: none"> Important to allow child to be involved in the decision making process. Child will want more explanations of need for procedure. Child will have developed magical thinking which can be used for fantasy scenes in guided imagery Child can be distracted by reading books, listening to music or T.V. (Doverly, 1992).





Stage-Age	Understanding of pain and responses to pain & Fears and concerns	Measuring pain Suggested Pain scales: (used where appropriate)	Family Involvement	Distraction techniques & pharmacological and non pharmacological methods of pain relief
Adolescent 13 yrs+	<ul style="list-style-type: none"> Pain acknowledged as a 'feeling' May be hyperresponsive to pain, minor procedures magnified. <p>Fears and concerns: Want to be consulted with decisions regarding procedure. Sense of identity. Maybe embarrassed to show fear. May act hostile to hide fear. Separation from peers (Duff 2008, Melhuish & Payne 2006 & Willock et al 2004).</p>	As per 6-12yr on previous page	<ul style="list-style-type: none"> Child may not want parent present. Child may be resistant to parental and authority figures. Explanation should be given in adult terms. 	<ul style="list-style-type: none"> Consulted in the decision making process. Give as much time as possible for advanced warning of procedure. Reality conversation Guided imagery Listening to music, reading books. Explanation of equipment and function allow time for questions.
Children with special needs/Intellectually challenged	<ul style="list-style-type: none"> Indications of pain: Increased flexion or extension Crying or alteration in type of sounds made Quieter/withdrawn Hypersensitivity Breath holding Colour changes Changes of facial expression Protective posture <p>Fears and concerns: Similar to age appropriate behaviours that are based on their developmental level (Duff 2008).</p>	<p>FLACC Behavioural assessment scale that uses body movements and sounds to assess older children that are cognitively & verbally impaired</p>	<ul style="list-style-type: none"> Parent/ Family member or carer should stay with child and assist if necessary. Ascertain from parent/ family member or carer how the child normally reacts to pain or discomfort and the comforting measures that they use. Explain procedure to parent/ Family member or carer and reason for same (Hockenberry & Wong 2003 & Trigg & Mohammed 2006). 	<ul style="list-style-type: none"> Similar to age appropriate behaviours that are based on their developmental level

Developed by Carmel O'Donnell, RNT, CCNE, based in OLCCHC.

References

- Broome M.E. (2000) Helping parents support their child in pain. *Pediatric Nursing* 26(3), 315-317.
- Davies E.H. & Molloy a. (2006) Comparision of ethyl chloride spray with topical anaesthetic in children experiencing venepuncture. *Paediatric Nursing*. 18(3), 39-42.
- Dougherty L. (2008) Peripheral cannulation. *Nursing Standard*. 22 (52), 49-56.
- Doherty N. (1992) Therapeutic play in hospital. *British Journal of Nursing*. 1(2), 77-81.
- Duff A.J.A. (2008) Incopporating psychological approaches into routine paediatric venepuncture. *ARCH.DIS.Child*. <http://adc.bmj.com/cgi/contentr/full/88/10/931>.
- Franuirk D., Koh J.L. & Schmitz M.L. (2000) Distraction techniques with Emla: Effects on IV insertion pain and distress in children. *Childrens Health Care*. 29(2), 87-101.
- Hockenberry M.J. & Wong D.L. (2003) *Wong's Nursing care of infants and children*. 7th ed. Mosby, Philadelphia.
- Melhuish S. & Payne H. (2006) Nurses' attitudes to pain management during routine venepuncture in young children. *Paediatric Nursing*. 16(2) 20-22.
- Nilson S., Finnstrom B. & Kokinsky E. (2008) The FLACC behavioral scale for procedural pain assessment in children ages 5-16 years. *Pediatric Anesthesia*. (18), 767-774.
- Krechel, SW & Bildner, J. (1995). CRIES: a new neonatal postoperative pain measurement score– initial testing of validity and reliability. *Paediatric Anaesthesia*, 5: 53-61.
- Royal College of Nursing (2003) *Restraining, holding still and containing children and young people (Guidance for nursing staff)*. Royal College of Nursing, London.
- Scales K. (2008) Intravenous therapy: a guide to good practice. *British Journal of Nursing*. 17(19), S4-S10.
- Tak J.H. & van Bon W.H.J. (2006) Pain-and distress-reducing interventions for venepuncture in children. *Health & Development*, 32 (3), 257-268.
- Trigg E. & Mohammed T.A. (2006) *Practices in Children's Nursing. Guidelines for hospital and community*. 2nd ed. Churchill Livingstone, London.
- Willock J. et al (2004) Peripheral venepuncture in infants and children. *Nursing Standard*. 18 (27),43-50.



Appendix ii

Peripheral Intravenous Cannulation Procedure - Infant

The peripheral intravenous cannulation procedure follows aseptic principles using a non touch technique.

Aseptic non touch technique should be used when inserting a peripheral venous cannula. This means that the **following key parts must only be touched by sterile items**

- All parts of the cannula except the outer protective shield and outer housing section
- Tip of leur lock
- Tips of extension set (if used)
- Tip of syringe
- Shaft and tips of needle/straw used for flush
- Section of gauze or steristrip that is in contact with cannula
- Side of dressing in contact with cannula

In undertaking the procedure, it is important that only the equipment required is brought to the bedside. This is to ensure that cross-contamination does not occur, increasing the risk to other patients.

Equipment required should be based on an assessment of the infant and the purpose of the peripheral intravenous cannulation and includes:

Peripheral Intravenous Cannulation - Infant - List Of Equipment

- | | |
|---|--|
| <ul style="list-style-type: none"> • A clean & disinfected dressing trolley • *Sterile dressing pack • Sharps container • Disposable non sterile Sheet (optional-in case of blood spillage) • **Personal Protective Equipment (e.g. 2 pairs of well-fitting non-sterile gloves, protective plastic apron, safety goggles /visor/mask with eye shield) • Skin Disinfectant: <ul style="list-style-type: none"> < 2 months old • 0.5%- 1% chlorhexidine aqueous solution <ul style="list-style-type: none"> > 2 months old • 70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available • Alcohol Hand rub/gel | <ul style="list-style-type: none"> • ***Intravenous Cannula (Choose size appropriately) • Topical anaesthetic agent (if prescribed) • Clean tourniquet • Sterile steristrips and sterile scissors • T -Connector • Sterile Prescribed Sodium Chloride (NaCl 0.9%) flush <ul style="list-style-type: none"> Neonates-1ml syringe with 0.5/1ml flush Infants 2ml syringe with 1/2ml flush) • Sterile gauze – (To absorb blood spillage) • Sterile, semi-permeable transparent dressing • Sterile child friendly plaster/band aid (In case of unsuccessful attempt) • Reward e.g. sticker or certificate |
|---|--|

* or equivalent to create a sterile field.

** As per Standard Precautions the use of a plastic apron and/or face protection should be assessed by each Health Care Worker based on the risk of blood splashing or spraying during the procedure.

***Range and type of equipment may vary depending on local organisational policy & the purpose of the cannulation (e.g., an intravenous therapy solution and stand if commencing intravenous therapy).

Peripheral Intravenous Cannulation - Infant

Prior to Procedure

- Confirm indication for the procedure
- Disinfect a clean trolley, using 70% alcohol or equivalent as per local guidelines
- Collect the appropriate equipment and inspect its integrity and expiry dates

At the Bedside

- Carry out hand hygiene
- Check the infant's identification, confirming same with parent or legal guardian
- Lower cot sides or incubator for easier access
- Explain the procedure, as appropriate to age and understanding, and check for allergies
- Discuss pain relief methods (pharmacological and non pharmacological methods)
- Obtain informed consent with parent and or legal guardian
- Ensure the infant is comfortable (use minimal clinical holding as required)
- Request assistance from other health care workers or family as required
- Apply the tourniquet (5/6cms above chosen site) and tighten slowly. (In neonates, especially extremely low birth weight babies, a tourniquet is not recommended)
- Place arm below heart level to encourage venous filling
- Palpate the site to check for rebound elasticity – press lightly with one finger and release
- Choose the appropriate vein
- Release the tourniquet, leaving it in position ready to reapply

Preparation of site and sterile field

- Carry out effective hand hygiene (Alcohol Hand rub/gel)
- Open the sterile dressing pack and add the sterile dressing, appropriate cannula for selected vein and other sterile items onto the sterile field using a non touch technique. Attach yellow waste bag to trolley
- If prefilled syringes not available draw up NACL 0.9% flush into syringe using needle or straw & prime T-connector. Place syringe on the sterile field but not touching any sterile items
- Cut sterile steristrips with sterile scissors
- Place disposable non sterile sheet (optional) under the infant's arm
- Reapply the tourniquet (Do not leave on for longer than two minutes)
- Disinfect the site- using a skin disinfectant suitable for the infants age
- Disinfect in a circular motion from insertion site outwards (5-10cms diameter)
- Place the used alcohol wipes into the yellow waste bag
- Allow to air dry, Do not repalpate the site



Cannula Insertion

- Put on gloves, (apron and eye protection if required)
- Use your non dominant hand to achieve skin traction
- Hold the cannula between your thumb and index finger
- Position the introducer facing bevel up
- Insert the cannula directly above the vein, through the skin (angle 10-30 degrees)
- Observe for flashback in the cannula chamber, when the introducer punctures the vein
- Decrease the angle between the introducer and the skin
- Advance the cannula a further 2mm along the vein
- Withdraw the introducer slightly and advance the cannula fully into vein
- Gently pull the introducer backwards while holding the cannula in position
- Release the tourniquet
- Hold the sterile gauze by one corner and place under the cannula hub (to absorb blood spillage). Ensure only section of gauze that is sterile is in touch with hub
- Apply digital pressure above the cannula tip and remove the introducer
- Place the introducer into the sharps bin
- Connect the primed t-connector to the cannula hub
- Discard the blood contaminated gauze into the yellow waste bag
- Flush with prescribed Sodium Chloride to confirm patency (Neonates-1ml syringe with 0.5/1ml flush, infants 2ml syringe with 1/2ml flush)
- Secure and anchor the cannula with sterile steristrips, using the chevron technique (place a full 12 mm steristrip, adhesive side up under the hub of the cannula, fold one end of the strip diagonally over the cannula, fold the other end of the strip diagonally over the other side of the cannula, place another short strip across the length of the cannula)
- Cover with a sterile semi permeable adhesive dressing
- Loop the t-connector tubing and secure with tape
- Remove disposable sheet, gloves and disposable eye protection (if applicable) and place in yellow waste bag
- Carry out effective hand hygiene (alcohol hanrub/gel) for a minimum of 15 seconds

After Care

- Inform parents/legal guardian of potential complications and advise to report same
- Ensure the infant is in a comfortable position and reassure
- Document the procedure, communicate and inform relevant staff
- Apply gloves and bring trolley with used items to dirty utility room
- Dispose of healthcare risk and non risk waste appropriately
- Clean and disinfect the trolley
- Clean and disinfect reusable visor if used as per manufacturer's instructions
- Remove gloves and apron and carry out appropriate Hand Hygiene for a minimum of 15 seconds

Appendix iii

Peripheral Intravenous Cannulation Procedure - Child

The peripheral intravenous cannulation procedure follows aseptic principles using a non touch technique.

Aseptic non touch technique should be used when inserting a peripheral venous cannula. This means that the **following key parts must only be touched by sterile items:**

- All parts of the cannula except the outer protective shield and outer housing section
- Tip of leur lock
- Tips of extension set (if used)
- Tip of syringe
- Shaft and tips of needle/straw used for flush
- Section of gauze and steristrip that is in contact with cannula
- Side of dressing in contact with cannula

In undertaking the procedure, it is important that only the equipment required is brought to the bedside. This is to ensure that cross-contamination does not occur, increasing the risk to other patients.

Equipment required should be based on an assessment of the child and the purpose of the peripheral intravenous cannulation and includes:

Peripheral Intravenous Cannulation - Child- List Of Equipment	
<ul style="list-style-type: none"> • A clean & disinfected dressing trolley • *Sterile dressing pack • Sharps container • Disposable non Sterile sheet (optional- in case of blood spillage) • **Personal Protective Equipment (e.g. 2 pairs of well-fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield) • Skin Disinfectant: Children (2 months and older) • 0.5%- 1% chlorhexidine aqueous solution > 2 months old • 70% impregnated alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available • Topical anaesthetic agent (if prescribed) 	<ul style="list-style-type: none"> • Alcohol hand rub/gel • ***Intravenous cannula (choose size appropriately) • Clean tourniquet • Sterile steristrips and sterile scissors • T Connector • Ampoule of prescribed sterile Sodium Chloride (NaCl 0.9%) Flush (Children-2ml syringe with 2ml flush) • Sterile gauze – (to absorb blood spillage) • Sterile, semi-permeable transparent dressing • Sterile child friendly plaster/band aid (In case of unsuccessful attempt) • Reward as agreed with child and parent e.g. sticker or certificate
* or equivalent to create a sterile field.	
** As per Standard Precautions the use of a plastic apron and/or face protection should be assessed by each Healthcare worker based on the risk of blood splashing or spraying during the procedure.	
*** Range and type of equipment may vary depending on local organisational policy & the purpose of the cannulation (e.g., an intravenous therapy solution and stand if commencing intravenous therapy).	



Peripheral Intravenous Cannulation - Child

Prior to Procedure

- Confirm indication for the procedure
- Disinfect a clean trolley using 70% alcohol (or equivalent as per local guidelines)
- Collect the appropriate equipment and inspect it's integrity and check expiry dates

At the Bedside

- Carry out hand hygiene for a least 15 seconds and apply apron
- Check the child's identification, confirming same with parent or legal guardian
- Lower cot sides for easier access
- Explain the procedure, as appropriate to age and understanding and check for allergies
- Discuss pain relief methods (pharmacological and non pharmacological methods)
- Obtain informed consent with parent and or legal guardian
- Ensure the child is comfortable (use minimal clinical holding as required)
- Request assistance from other health care workers or family as required
- Place disposable non sterile sheet (optional) under the child's arm
- Apply the tourniquet (5/6cms above chosen site) and tighten slowly
- Ask the child to open/close fist if able or place arm below heart level to encourage venous filling
- Palpate the site to check for rebound elasticity -press lightly with two fingers and release
- Choose the appropriate vein
- Release the tourniquet, leaving it in position ready to reapply

Preparation of site and sterile field

- Carry out effective hand hygiene (alcohol hand rub/gel)
- Open the sterile dressing pack and add the sterile dressing, steristrips, scissors, appropriate cannula for selected vein and other sterile items onto the sterile field using a non touch technique. Attach yellow waste bag to trolley
- If not using prefilled syringes draw up prescribed NAACL 0.9% flush into syringe using needle or straw and prime T-Connector. Place syringe on the sterile field but avoid touching any sterile items
- Cut the sterile steristrips with a sterile scissors, leaving them ready for use
- Reapply the tourniquet (do not leave on for longer than two minutes)
- Disinfect the site- using 70% alcohol impregnated sterile wipes or appropriate solution of Chlorhexidine depending on age of child
- Disinfect in a circular motion from insertion site outwards (5-10cms diameter)
- Place the used alcohol wipes into the yellow waste bag
- Allow to air dry, Do not repalpate the site

Cannula Insertion

- Apply gloves and goggles/visor/mask with eye shield if applicable
- Use your non dominant hand to achieve skin traction
- Hold the cannula between your thumb and index finger
- Position the introducer facing bevel up
- Insert the cannula directly above the vein, through the skin (angle 10-30 degrees)
- Observe for flashback in the cannula chamber, when the introducer punctures the vein
- Decrease the angle between the introducer and the skin
- Advance the cannula a further 2mm along the vein
- Withdraw the introducer slightly and advance the cannula fully into vein
- Gently pull the introducer backwards while holding the cannula in position
- Release the tourniquet
- Hold the sterile gauze by one corner and place under the cannula hub (to absorb blood spillage)
- Ensure only section of gauze that is sterile is in touch with hub
- Apply digital pressure above the cannula tip and remove the introducer
- Place the introducer into the sharps box
- Connect the primed t-connector to the cannula hub
- Flush with prescribed Sodium Chloride to confirm patency (children-2ml syringe with 2ml flush)
- Secure and anchor the cannula with sterile steristrips, using the chevron technique (place a full 12 mm steristrip, adhesive side up under the hub of the cannula, fold one end of the strip diagonally over the cannula, fold the other end of the strip diagonally over the other side of the cannula, place another short strip across the length of the cannula)
- Secure with a sterile semi permeable adhesive dressing
- Loop the t-connector tubing and secure with tape
- Remove disposable sheet, gloves and disposable eye protection and place in the yellow waste bag
- Carry out effective hand hygiene for a minimum of 15 seconds

After Care

- Ensure the child is in a comfortable position and reassure
- Inform the child and parents/legal guardian of potential complications and advise to report same
- Document the procedure, communicate and inform relevant staff
- Apply gloves and bring trolley to the dirty utility room
- Dispose of healthcare risk and non risk waste appropriately
- Clean and disinfect the trolley
- Clean and disinfect reusable visor if used as per manufacturer's instructions
- Remove gloves and apron
- Carry out appropriate hand hygiene (alcohol hand rub/gel) for a minimum of 15 seconds



Appendix iv

Types of Cannulae for Children

Peripheral Intravenous Cannula Types — Children

Colour code	Purpose	Gauge size	Volumes
White	Neonates	26G	Very small volumes for neonates or very dehydrated infants
Yellow/Lime	Infants/Neonates	24G	Small
Blue	Most common for children	22G	Normal volume of fluid in older children or large volume of fluid in infants
Pink	General hydration or Blood Transfusion in children	20G	Medium
Green	For adolescents requiring hydration or blood transfusions	18G	Used in theatres or when large volumes are required

Appendix v

Management of Complications

As younger children cannot verbalise pain, they depend on the nurse to detect and prevent complications related to peripheral intravenous cannulation.

Potential Complications of Peripheral Intravenous Cannulation

Infiltration	Infiltration is the inadvertent administration of a non-vesicant (non irritant) solution or medication into surrounding tissue (Wong, 2007). This is the most common complication in children.
Cause	<ul style="list-style-type: none"> Peripheral intravenous cannula occlusion or misplacement causing fluid to infiltrate the tissues. When a peripheral intravenous cannula is difficult to flush, trauma to the vessel wall can occur, which weakens the wall and increases the probability of infiltration from leakage.
Signs	<ul style="list-style-type: none"> Swelling and oedema, expressions of pain (verbal or non verbal) such as facial expressions or crying, loss of mobility or reluctance to move the affected limb Discolouration and coolness of site adjacent to cannula. It can be measured according to the infiltration scale
Prevention	<ul style="list-style-type: none"> Regular monitoring (hourly) of cannula site helps prevent infiltration. In children, the cannula site should be monitored more frequently as they are at increased risk due to small vessels and increased activity levels. Ensure the cannula is secured correctly
Treatment	<ul style="list-style-type: none"> Immediately remove the cannula. Apply an appropriate dressing. Administer analgesia as prescribed

Extravasation	Extravasation is the inadvertent administration of a vesicant (irritant) solution or medication into surrounding tissue (Wong, 2007).
Cause	<ul style="list-style-type: none"> Leakage of vesicant solutions into the tissues. Examples of vesicant solutions are Dextrose 10%, Total Parenteral Nutrition, Calcium, Potassium Chloride (KCL high doses) and chemotherapy
Signs	<ul style="list-style-type: none"> Expressions of pain (verbal and non verbal), such as facial expressions or crying Reluctance to move affected limb Blistering, burning sensation, ischemia, necrosis and tissue sloughing
Prevention	<ul style="list-style-type: none"> Early detection and immediate action is crucial, with at least hourly monitoring of the cannulation site In children, the site should be monitored more frequently as they are at increased risk due their small vessels and increased levels of activity Ensure the cannula is secured correctly
Treatment	<ul style="list-style-type: none"> Immediately remove the cannula and apply an appropriate dressing Administer analgesia as prescribed Consult with medical personnel about specific solutions and their treatment



Venous Spasm	Venous spasm is a sudden involuntary contraction of the vein, resulting in temporary cessation of blood flow in the vein.
Cause	<ul style="list-style-type: none"> • Venous spasm is caused by fear and anxiety and is usually stimulated by cold infusates, and mechanical or chemical irritation
Signs	<ul style="list-style-type: none"> • Expressions of pain (verbal or non verbal) such as facial expressions or crying • Cramping • Numbness above the infusion site
Prevention	<ul style="list-style-type: none"> • Explain the procedure to reduce fear and anxiety • Give infusions at room temperature (commence infusions slowly)
Treatment	<ul style="list-style-type: none"> • Gently massage or warm the limb and retry • Slow down the process of cannulation (there is no need to remove the cannula) • Wait for the vein to relax and wait for blood to return into the flash chamber before proceeding • During intravenous therapy, reduce the rate of infusion flow, especially in solutions known to be irritant

Phlebitis	Phlebitis is an acute inflammation of the intima of a vein (Dougherty, 2008).
Cause	<ul style="list-style-type: none"> • Mechanical phlebitis: vein irritation caused by too large a cannula, a fast rate of infusion, excessive bending of the arm or manipulation of the cannula • Chemical phlebitis: can be caused by medications or solutions (acid or alkaline). Risk of phlebitis increases with an abnormal pH • Bacterial/Septic phlebitis: introduction of an infectious agent at the cannula site; migration of common skin organisms through the cannula
Signs	<ul style="list-style-type: none"> • Expressions of pain (verbal or non verbal) such as facial expressions or crying • Loss of mobility or reluctance to move the affected limb • Redness, inflammation, or purulent ooze at the cannula site
Prevention	<ul style="list-style-type: none"> • Early detection is crucial, with at least one hourly monitoring of the cannulation site. If vesicant solutions are infusing, increase the monitoring of the site • In children, the site should be monitored more frequently as they are at increased risk due to their small vessels
Treatment	<ul style="list-style-type: none"> • Stop the infusion and remove the cannula • Assess the degree of phlebitis (Phlebitis Score - Jackson, 1998) • Take a swab of the site for culture and sensitivity • Clean and apply a dressing, to the affected area and administer analgesia as prescribed • Report the incident of this complication • Treat as prescribed and document the care given

Thrombophlebitis	Thrombophlebitis is the inflammation of a vein with a thrombus formation.
Cause	<ul style="list-style-type: none"> • Traumatic cannulation by an unskilled practitioner or multiple attempts • Use of too large a cannula for the size of the vein • Infusion of high pH solution or poor circulation with venous stasis
Signs	<ul style="list-style-type: none"> • Local redness, hard and torturous feel of the vein, heat, painful to touch or move • Expressions of pain (verbal or non verbal) such as facial expressions or crying
Prevention	<ul style="list-style-type: none"> • Early detection is crucial with at least one hourly monitoring of the cannulation site • Appropriate site selection • Appropriate selection of equipment for size of vein • Skilled technique
Treatment	<ul style="list-style-type: none"> • Discontinue infusion, remove the cannula, and elevate the extremity • Report the incident of this complication as per local organisational policy • Treat as prescribed and document the care

Haematoma	Haematoma is the formation of a painful and hard swelling at the site of the cannula.
Cause	<ul style="list-style-type: none"> • Infiltration of fluid into the tissue at the site of the cannula, resulting in the formation of a painful and hard swelling • Inappropriate use of a small fragile vein, or too large a needle • Excessive probing to find the vein • Removing the needle prior to releasing the tourniquet • The needle going all the way through the vein • The needle only partially entering the vein, allowing leakage
Signs	<ul style="list-style-type: none"> • Expressions of pain (verbal or non verbal) such as facial expressions or crying, loss of mobility or reluctance to move the affected limb • Swelling, discolouration or coolness of the area adjacent to the cannula
Prevention	<ul style="list-style-type: none"> • Selection of appropriate equipment for the size of the vein • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, remove the cannula and apply pressure until haemostasis has been achieved • Elevate the limb and apply a cool compress if necessary, avoiding an ice burn • Apply a pressure dressing if bleeding is persistent • Explain what has happened and request that staff are informed if the area becomes more painful as the haematoma may be pressing on a nerve • Do not reapply the tourniquet to the affected limb • Request a medical review, if required • Monitor, treat as prescribed and document in the nursing care plan • Report the occurrence of this complication, as per local organisational policy



Nerve Injury	Nerve injury is an inadvertent injury to the nerve.
Cause	<ul style="list-style-type: none"> • Inappropriate selection of the cannulation site • Poor technique
Signs	<ul style="list-style-type: none"> • Pain described as an 'electrical shock' or a 'pins and needles' sensation • Crying • Loss of mobility or reluctance to move the affected limb
Prevention	<ul style="list-style-type: none"> • Appropriate clinical assessment • Appropriate site selection • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, remove the cannula and apply gentle pressure • Explain and reassure the child about what has occurred • Advise that any symptoms of altered sensation may persist for a few hours • Arrange a medical review, if required • Monitor, treat as prescribed and document in the nursing care plan • Finally, report the occurrence of this complication, as per local organisational policy

Arterial Puncture	The inadvertent puncture of the artery is another complication associated with cannulation.
Cause	<ul style="list-style-type: none"> • Inappropriate selection of the cannulation site • Poor technique
Signs	<ul style="list-style-type: none"> • Presence of bright red blood • Expressions of pain (verbal or non verbal) such as facial expressions or crying
Prevention	<ul style="list-style-type: none"> • Appropriate clinical assessment • Appropriate site selection • Skilled technique
Treatment	<ul style="list-style-type: none"> • Release the tourniquet, removing the cannula immediately and apply pressure until haemostasis has been achieved • Explain and reassure the child and their family regarding what has happened • Request that a member of staff is informed if bleeding recurs from the puncture site, if pain continues or if there is increasing swelling or bruising • Arrange a medical review • Monitor, treat as prescribed and document in the nursing care plan • Report the occurrence of this complication, as per local organisational policy

Embolism	An embolism is an air bubble, fat particle or blood clot which travels, causing a blockage in the vein.
Cause	<ul style="list-style-type: none"> • An embolism occurs when an air bubble, fat particle, or blood clot becomes detached and is carried by the venous flow to the heart and potentially into the pulmonary circulation.
Signs	<ul style="list-style-type: none"> • Pain • Shortness of breath • Collapse • Shock
Prevention	<ul style="list-style-type: none"> • Embolism can be prevented by stopping air from entering the system, ensuring that all connections are secure, careful flushing and by securing the cannula adequately
Treatment	<ul style="list-style-type: none"> • Call for urgent medical attention and treat as prescribed

Needle Stick Injury	A needle stick injury (percutaneous inoculation injury) is an inadvertent puncture of the skin with a potentially contaminated needle.
Cause	<ul style="list-style-type: none"> • Inadvertent puncture of the skin during the cannulation procedure
Signs	<ul style="list-style-type: none"> • Pain • Bleeding • A visible puncture of the skin of the nurse or midwife
Prevention	<ul style="list-style-type: none"> • The application of Infection Prevention & Control and Health and Safety Policy will support safe practice
Treatment	<ul style="list-style-type: none"> • Encourage the wound to bleed freely (do not suck the wound) • Wash the affected area with liquid soap under running water • Apply a waterproof dressing over the affected area • Report the incident to your line manager • Record the incident accordingly by completing the relevant incident form • Submit the incident form to your risk manager or line manager • For follow-up and advice, contact your Occupational Health Dept and/or the Accident and Emergency Dept as per local organisational policy



Appendix vi

Removal of a Peripheral Intravenous Cannula in Children

List of Equipment

- A clean clinical tray
- Small kidney dish for Healthcare Risk Waste (placed in tray) or use clinical tray with 2 integrated compartments (one to be used for waste)
- Disposable non sterile sheet (optional in case of blood spillage)
- *Personal Protective Equipment (PPE) e.g 2 pairs of well-fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield
- Adhesive remover/spray/cleanser
- Sterile gauze
- Sterile waterproof child friendly plaster or dressing
- Reward as agreed with child and parent e.g. sticker or certificate



* As per Standard Precautions, the use of a plastic apron and/or face protection should be assessed by each Health Care Worker based on the risk of blood splashing or spraying during the procedure

Prior to Procedure

- Confirm indication for removal of peripheral intravenous cannula
- Disinfect a clean clinical tray using 70% alcohol (or equivalent as per local guidelines)
- Collect the appropriate equipment and inspect it's integrity

At the Bedside

- Carry out hand hygiene for a minimum of 15 seconds
- Confirm infant's identify with parent, legal guardian or family
- Explain the procedure, check for allergies to dressings, and obtain informed consent with child and parent or legal guardian to remove the cannula
- Open the sterile gauze and sterile dressing using packaging to ensure it remains on a sterile field
- Ensure the child is in a comfortable position, taking account of minimal clinical holding if required and the use of distraction therapies
- Examine the peripheral intravenous cannulation site and surrounding area for signs of infection

Preparation

- Stop intravenous infusion if in place
- Apply gloves (apron and eye protection if required)
- Remove the outer dressing, using adhesive remover if necessary and place in kidney dish or compartment in clinical tray for waste
- Remove the chevron taping (steristrips) from around the cannula and place in kidney dish or compartment in clinical tray for waste

Cannula Removal

- Slowly remove cannula. With sterile gauze, apply gentle pressure as cannula tip is removed
- Inspect cannula length and integrity on removal
- Place cannula into kidney dish or compartment in clinical tray for waste
- Maintain gentle pressure to peripheral intravenous site and hold in place for two to three minutes
- Inspect peripheral intravenous cannulation site for evidence of infection or inflammation
- Apply sterile gauze dressing or sterile child friendly plaster
- Remove gloves and eye protection if applicable and place in clinical tray
- Carry out effective hand hygiene for a minimum of 15 seconds (Alcohol hand rub/gel)

After Care

- Inform the child and parent/legal guardian of possible complications and advise to report same
- Ensure the child is in a comfortable position and reassure, offering appropriate child friendly reward
- Document the procedure, communicate and inform relevant staff
- Apply gloves and bring tray with used items to the dirty utility
 - o Dispose of healthcare risk and non risk waste appropriately
 - o Clean and disinfect the clinical tray and kidney dish if reusable
 - o Clean and disinfect reusable eye shield as per manufacturer's instructions if applicable
 - o Remove gloves and apron and carry out appropriate hand hygiene
- Organise for reinsertion of another peripheral intravenous cannula if required







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Office of the Nursing Services Director
Health Service Executive
Dr Steevens' Hospital
Dublin 8
Ireland

telephone: +353 1 635 2471
email: nursing.services@hse.ie

www.hse.ie



Office of the
Nursing Services Director