# Venepuncture Guideline for Clinical staff

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## Location of Copies

On Hospital Intranet and locally in department

## Document Review History

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</tr>
</tbody>
</table>
1.0 Introduction

1.1 Guideline Statement
It is the Guidance of Our Lady’s Children’s Hospital that staff undertaking peripheral venepuncture must have successfully achieved competence in this skill of venepuncture. For nursing staff completion of 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 (2009). Staff undertaking venepuncture will do so in accordance with the procedural elements as outlined in this guideline.

1.2 Purpose
The purpose of this guideline is to:

- Outline the roles and responsibilities of the staff member 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 guideline applies to all medical, and Nursing staff who carry out Venepuncture on infants and children in OLCHC.

2.0 Procedural Guideline for the Venepuncture Procedure

2.1 Indications
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.

2.2 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.

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.

2.3 Preparation for Procedure

2.4 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).
2.5 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 ‘Children First National Guidelines for the Protection and Welfare of Children’ (Department of Health & Children 2009)

2.6 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 2005). 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.

2.7 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: 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 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.

2.8 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:

<table>
<thead>
<tr>
<th>Median Cubital Vein in the Antecubital Fossa</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Deep veins with rich blood supply</td>
</tr>
<tr>
<td></td>
<td>• Easy to palpate</td>
</tr>
<tr>
<td></td>
<td>• Well supported by subcutaneous tissue (prevents vein rolling under the needle)</td>
</tr>
<tr>
<td></td>
<td>• Accessible in thin people</td>
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<table>
<thead>
<tr>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Brachial artery and radial nerve in close proximity</td>
</tr>
<tr>
<td>• Difficult to locate in child with increased subcutaneous fat</td>
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</table>

<table>
<thead>
<tr>
<th>Cephalic and</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Larger veins</td>
</tr>
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</table>
**Basilic Veins in the Forearm**

**Disadvantages**
- Cannot be used if site is used for arteriovenous fistula not really seen in children
- 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**

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.

**Advantages**
- Easily accessible, easily visualised and palpable
- Prominent in obese patients

**Disadvantages**
- 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.

### 2.9 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:

**Check**
- the indication for venepuncture to determine equipment and specific bottles to use
- if patient 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 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 not really seen in children
• arm affected by a cerebro vascular accident
• arm affected by lymphoedema

### 2.10 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.

<table>
<thead>
<tr>
<th>Venepuncture Procedure -Child</th>
<th>List of Equipment</th>
</tr>
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<tbody>
<tr>
<td>• A clean clinical tray</td>
<td>• Clean tourniquet</td>
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<tr>
<td>• Sharps container (large enough to accommodate the blood collection system)</td>
<td>• Topical anaesthetic agent if prescribed</td>
</tr>
<tr>
<td>• Disposable non sterile Sheet-(optional in case of blood spillage)</td>
<td>• <strong>Required blood collection set</strong></td>
</tr>
<tr>
<td>• *Personal Protective Equipment (e.g., 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield)</td>
<td>• <strong>Required blood specimen bottles</strong></td>
</tr>
<tr>
<td>• Skin disinfectant (70% impregnated alcohol wipes)</td>
<td>• Blood requisition forms (fully completed with child details)</td>
</tr>
<tr>
<td>• Alcohol Hand rub/gel</td>
<td>• A Biohazard bag for transport of specimens</td>
</tr>
</tbody>
</table>

* 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

#### 2.11 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.

<table>
<thead>
<tr>
<th>Safety –Multifly System</th>
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<tr>
<td>The Safety Multifly System can be used as an aspiration method and/or a vacuum method. Components in the system include:</td>
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<tr>
<td>• multi-sampling needles with pre-assembled holders</td>
</tr>
<tr>
<td>• needle protection devices</td>
</tr>
<tr>
<td>• series of specific bottles with caps of various colours which are unique to this system (The colours indicate the type of additives).</td>
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</table>
2.11 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.

2.12 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 – Blood Cultures
- 2nd Samples - Anti coagulants
- 3rd Samples - Clotted samples
- 4th Samples – Lithium Heparin (WHO, 2002)
- 5th Samples - EDTA

2.13 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 2
- Venepuncture Procedure Child – Appendix 3

2.14 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.

2.15 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)

4.0 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.

5.0 Evaluation and Audit
Evaluation will include:
- A mechanism for recording, reviewing and acting on adverse venepuncture incidents
- A system for maintaining practitioner competence
- A method for identifying further training needs
References

Resources

- An Bord Altranais (2003) Guidelines on the Key Points that may be Considered when Developing a Quality Clinical Learning Environment: [http://www.nursingboard.ie/]
• Health Information and Quality Authority (2009) National Standards for the Prevention and Control of Health Care Associated Infections. HIQA: Dublin
• 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 (2009) Policy on Venepuncture for Adults. HSE: Dublin
• Health Service Executive (2009) Policy on Venepuncture for Children. HSE: Dublin
• 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/
• Nentwich, P., F. (1990) Intravenous Therapy, Jones and Barlett: Massachusetts.
• 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) Informed Consent in Health and Social Care Research, Royal College of Nursing: London.
Appendices

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.

<table>
<thead>
<tr>
<th>Stage-Age</th>
<th>Understanding of pain and responses to pain &amp; Fears and concerns</th>
<th>Measuring pain</th>
<th>Family Involvement</th>
<th>Distraction techniques &amp; pharmacological and non pharmacological methods of pain relief</th>
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</thead>
<tbody>
<tr>
<td><strong>Neonatal</strong></td>
<td>Exhibits facial expressions of pain: Brows lowered &amp; drawn together, eyes tightly closed mouth opened &amp; squarish. Cry intensely, loudly, inconsolable Changes in sleep/awake cycles, activity level Exhibit hypersensitivity or irritability Becomes withdrawn unresponsive.</td>
<td><strong>CRIES</strong> Pain scale for neonates that uses biophysiological indicators of pain (Krechel &amp; Bildner, 1995).</td>
<td>-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 interrupter). -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).</td>
<td>-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 &amp; Mohammed, 2006)</td>
</tr>
<tr>
<td><strong>Infants 0-1 year</strong></td>
<td>Exhibit facial expressions of pain- brows lowered &amp; drawn together, eyes tightly closed, mouth opened &amp; squarish. Cry intensely, loudly, inconsolable Poor oral intake Changes in sleep/awake cycles, activity level. Exhibit hypersensitivity or irritability. Becomes withdrawn unresponsive</td>
<td><strong>FLACC</strong> (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 &amp; Wong 2003)</td>
<td>-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.</td>
<td>-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 &amp; Molloy, 2006, Scales, 2008 &amp; Dougherty, 2008). (Please refer to local guidelines, policies and manufactures’ instructions)</td>
</tr>
</tbody>
</table>
| **Fears and concerns:**
Totally dependant on parents and other adults for basic needs. Trusts that adults will respond to basic needs. | -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). |
| **FLACC**
pain scale: same as above | -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 & Franuirk 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.
-May cry for discomfort on being held rather than being in pain. |

| Changed behaviour:
Irritability, crying, screaming,
unusual posture, unusual quietness
Increased clinging, loss of appetite
Restlessness, disturbed sleep pattern | Toddler
(1-3 year) |

| **Fears and concerns:**
Little fear of danger.
Fear of separation from parents.
Limited language and understanding of procedure.
Threat of immediate pain is overwhelming. |

| Changed behaviour:
Irritability, crying, screaming,
unusual posture, unusual quietness
Increased clinging, loss of appetite
Restlessness, disturbed sleep pattern | Preschool age children
(4-6yr) |

| Able to use more descriptive adjectives and attachments of associated emotions (e.g. sad, painful, mad) | Wong-Baker Face Rating Scale
Suggested age group 4 years and over &
-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 |

| -Same as with toddler.
-Ascertain what the child likes to play with as this could be used as a distraction technique. | -Same as toddler. 
-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). |
<table>
<thead>
<tr>
<th></th>
<th>Fears and concerns:</th>
<th>older children with different languages. (Hockenberry &amp; Wong 2003)</th>
<th>made according to organisational policy to organise an interpreter)</th>
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<tbody>
<tr>
<td>School age children (6-12yr)</td>
<td>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.</td>
<td>-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.</td>
<td>-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)</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td>Wong-Baker Face Rating Scale Can be used for child with different languages. (Hockenberry &amp; Wong 2003 &amp; Trigg &amp; Mohammed 2006)</td>
<td>Parents and practitioner can use diagrams models to explain procedure.</td>
</tr>
<tr>
<td></td>
<td>FLACC Pain scales have been proven to be beneficial in this age group. (Nillson et al 2008)</td>
<td>-Encourage parents to bring in child’s favourite music and books.</td>
<td>Child may be distracted by reading books, listening to music or T.V. (Doverty, 1992).</td>
</tr>
<tr>
<td>Adolescences 13 yrs+</td>
<td>Pain acknowledged as a ‘feeling’ May be hyperresponsive to pain, minor procedures magnified.</td>
<td>As above</td>
<td>-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.</td>
</tr>
<tr>
<td></td>
<td>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 &amp; Payne 2006 &amp; Willock et al 2004).</td>
<td>-Child may not want parent present. -Child may be resistant to parental and authority figures. -Explanation should be given in adult terms.</td>
<td></td>
</tr>
<tr>
<td>Children with special needs/Intellectually</td>
<td>Indications of pain: Increased flexion or extension Crying or alteration in type of sounds made Quieter/withdrawn</td>
<td>FLACC Behavioural assessment scale that uses body</td>
<td>-Parent/ Family member or carer should stay with child and assist if necessary. -Ascertain from parent/ family</td>
</tr>
<tr>
<td></td>
<td>-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.</td>
<td>-Similar to age appropriate behaviours that are based on their developmental level</td>
<td></td>
</tr>
</tbody>
</table>
Fears and concerns:  Similar to age appropriate behaviours that are based on their developmental level (Duff 2008).

Developed by Carmel O’Donnell, RNT, CCNE, based in OLCHC.

References
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:**

<table>
<thead>
<tr>
<th>Venepuncture Procedure -Infant</th>
<th>List of Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A clean clinical tray</td>
<td>• Clean tourniquet</td>
</tr>
<tr>
<td>• Small kidney dish for Healthcare Risk Waste (placed in tray)</td>
<td>• Topical anaesthetic agent if prescribed</td>
</tr>
<tr>
<td>• Sharps container (large enough to accommodate the blood collection system).</td>
<td>• **Required blood collection set</td>
</tr>
<tr>
<td>• Disposable non sterile sheet-(optional in case of blood spillage)</td>
<td>• **Required blood specimen bottles</td>
</tr>
<tr>
<td>• *Personal Protective Equipment (e.g., 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield)</td>
<td>• Blood Requisition Forms (fully completed with infant details)</td>
</tr>
<tr>
<td>• Skin disinfectant</td>
<td>• A Biohazard Bag for transport of specimens</td>
</tr>
<tr>
<td>o &lt; 2 Months 0.5% -1% Chlorhexidine Aqueous Solution</td>
<td>• Sterile gauze-(to apply pressure and absorb blood spillages)</td>
</tr>
<tr>
<td>o &gt; 2 Months - alcohol wipes or 2% Chlorhexidine in 70% alcohol when supply available</td>
<td>• Sterile child friendly plaster/band aid</td>
</tr>
<tr>
<td>• Alcohol hand rub/gel</td>
<td>• Reward e.g. sticker or certificate</td>
</tr>
</tbody>
</table>

*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**
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 Aquous 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
  - 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
  - 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 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
  - Dispose of healthcare risk and non risk waste appropriately
  - Clean and disinfect the clinical tray and kidney dish if reusable
  - Clean and disinfect reusable eye shield as per manufacturer’s instructions if applicable
  - 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:

<table>
<thead>
<tr>
<th>Venepuncture Procedure -Child</th>
<th>List of Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A clean clinical tray</td>
<td>• Clean tourniquet</td>
</tr>
<tr>
<td>• Small tray for Healthcare Risk Waste (placed in tray)</td>
<td>• Topical anaesthetic agent if prescribed</td>
</tr>
<tr>
<td>• Sharps container (large enough to accommodate the blood collection system).</td>
<td>• **Required blood collection set</td>
</tr>
<tr>
<td>• Disposable non sterile sheet-(optional in case of blood spillage)</td>
<td>• **Required blood specimen bottles</td>
</tr>
<tr>
<td>• *Personal Protective Equipment (e.g., 2 pairs of well fitting non-sterile gloves, protective plastic apron, safety goggles/visor/mask with eye shield)</td>
<td>• Blood requisition forms (fully completed with child details)</td>
</tr>
<tr>
<td>• Skin disinfectant (  1. Chlorhexidine70% with 2% alcohol for children over 2 months corrected gestational age</td>
<td></td>
</tr>
<tr>
<td>2. Sterexidine –chlorohexidine 0.05% aqueous solution</td>
<td>• A biohazard bag for transport of specimens</td>
</tr>
<tr>
<td>• Alcohol hand rub/Gel</td>
<td>• Sterile gauze-(to apply pressure and absorb blood spillages)</td>
</tr>
<tr>
<td>**Required blood collection set</td>
<td></td>
</tr>
<tr>
<td>**Required blood specimen bottles</td>
<td></td>
</tr>
<tr>
<td>• Blood requisition forms (fully completed with child details)</td>
<td></td>
</tr>
<tr>
<td>• A biohazard bag for transport of specimens</td>
<td></td>
</tr>
<tr>
<td>• Sterile gauze-(to apply pressure and absorb blood spillages)</td>
<td></td>
</tr>
<tr>
<td>• Sterile child friendly plaster/band aid</td>
<td></td>
</tr>
<tr>
<td>• Reward as agreed with child and parent e.g. sticker, or certificate</td>
<td></td>
</tr>
</tbody>
</table>

* 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
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 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
  - 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
  - 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 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
  - Dispose of healthcare risk and non risk waste appropriately
  - Clean and disinfect the clinical tray and kidney dish if reusable
  - Clean and disinfect reusable eye shield as per manufacturer’s instructions if applicable
  - 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.
### Phlebitis

**Cause**
- Localised infection or irritation of the vein caused by the introduction of the venepuncture needle (mechanical phlebitis)

**Signs**
- Expressions of pain (verbal or non verbal) such as facial expressions or crying
- Cramping
- Redness, inflammation, or purulent ooze at the venepuncture site

**Prevention**
- 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**
- 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.

### Venous Spasm

**Cause**
- Venous spasm is caused by fear and anxiety and is usually stimulated by cold infusates and mechanical or chemical irritation.

**Signs**
- Expressions of pain (verbal or non verbal) such as facial expressions or crying
- Cramping
- Numbness above the venepuncture site

**Prevention**
- Explain the procedure to reduce fear and anxiety.

**Treatment**
- 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

**Cause**
- 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**
- Expressions of pain (verbal or non verbal) such as facial expressions or crying, loss of mobility or reluctance to move the affected limb
- Swelling, discoloration or coolness of the area adjacent to the puncture site.

**Prevention**
- Selection of appropriate equipment for the size of the vein
- Skilled technique

**Treatment**
- 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.
### Nerve Injury

**Nerve injury is an inadvertent injury to the nerve.**

| Cause | • Inappropriate selection of the venepuncture site  
|       | • Poor technique |
| Signs | • Pain described as an ‘electrical shock’ or a ‘pins and needles’ sensation  
|       | • Crying  
|       | • Loss of mobility or reluctance to move the affected limb |
| Prevention | • Appropriate clinical assessment  
|            | • Appropriate site selection  
|            | • Skilled technique |
| Treatment | • 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 | • Inappropriate selection of the venepuncture site  
|       | • Poor technique |
| Signs | • Presence of bright red blood  
|       | • Expressions of pain (verbal or non verbal) such as facial expressions or crying |
| Prevention | • Appropriate clinical assessment  
|            | • Appropriate site selection  
|            | • Skilled technique |
| Treatment | • 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 | Inadvertent puncture of the skin during the venepuncture procedure |
| Signs | • Pain  
|       | • Bleeding  
|       | • A visible puncture of the skin of the nurse or midwife |
| Prevention | The application of Infection Prevention & Control and Health and Safety Policy will support safe practice. |
| Treatment | • 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. |