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Undertaking Capillary Blood Sampling in Paediatrics

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Key Amendments

Date	Amendment	Approved by
19th Nov 2020	Document extended for 1 year	Dr J West/Paediatric QIM
26th March 2021	Approved with no amendments	Paediatric QIM
9th February, 2024	Document reapproved.	Paediatric QIM

Introduction

Developing skills in performing capillary blood sampling can facilitate holistic care and timely treatment. For nurses working with children and young people this is usually regarded as an expanded role (RCN 2005).

It is expected that all staff performing capillary blood sampling in paediatrics should follow this policy when working within the Worcestershire Acute NHS Trust.

In order to do this safely the practitioner must have a basic knowledge of the following:

1. The relevant anatomy and physiology of the of the suitable sites for capillary sampling

2. The criteria for choosing both the site and device to use. (See appendix 1)

3. The potential problems which may be encountered, how to prevent them and necessary interventions (refer to Needlestick Policy).

4. The health and safety/risk management of the procedure, as well as the correct disposal of equipment.

5. The practitioner should also demonstrate correct usage of the blood collecting systems and the knowledge of the correct labelling of bottles and forms.

The circulatory system is a closed sterile system and capillary blood sampling, however quickly completed is a breach of this system providing a method of entry for bacteria. Aseptic principles must therefore be adhered to throughout the procedure.

The practitioner must be aware of the physical and psychological comfort of the child and to appreciate the value of adequate explanation and procedures to reduce anxiety and fear.

Competencies Required & Patients Covered

Competencies Required

The Royal College of Nursing (2005) advise that there are considerable differences between children of varying ages, and they recommend that practitioners develop competence within specific age bands according to their area of practice. They describe the age band as 0 to 1 years, 1 to 5 years and 5 years

and above. Advice should be sought senior colleagues before performing the skill on pre term infants pre 34 weeks.

Non-Medical Practitioners undertaking the skill of capillary blood sampling should complete the following:

1. Theory relating to capillary blood sampling via a course recognised by the Trust.

   And

2. Minimum of 10 supervised successful capillary sampling.

   Or

3. If evidence of previous competency can be shown, a minimum of 1 supervised successful capillary sampling.

NOTE: If the practitioner intends to achieve competency across the three age ranges then they must evidence a minimum of 10 successful capillary blood samples with a minimum of one from each age range.

It is expected that medically qualified practitioners will have achieved and developed the requisite knowledge and skill of capillary blood sampling as part of their core medical training and development.

Patients Covered

All children requiring capillary blood sampling.

Reducing Anxiety Pain & Discomfort

Willock et al (2004) explains that an important role of the children's nurse is to help children cope with procedures and reduce any adverse effects and distress caused. They explain that these children may need their parents and the health care professionals help to cope by providing distraction and comfort, as well as topical pain relief.

Prior to capillary blood sampling the practitioner should:

- Assess the child or young person's perception of pain
- Create a safe, comfortable, calm and child focused environment
- Be empathetic rather than directive
- Consider the use of play and distraction techniques
- Consider using play specialist and psychologist to prepare child for procedure
- Consider in a young infant the use of either a breast feed or oral sucrose to reduce discomfort

Equipment

- Clinically clean Plastic Tray with sharps bin
- Appropriate Lancet
- Appropriate capillary tube (if gas), specimen bottles and specimen forms
- Isopropyl alcohol 70% swab
- Non sterile surgical gloves

- Sterile gauze swab

Selecting a Site

- When obtaining a sample form the heel, the most medial or lateral portion of the heel should be identified. Punctures should never be made on the posterior curvature of the heel below the Achilles tendon, where the bone is closest to the skin or the arch of the foot. See picture below for correct areas.

- When obtaining blood from the finger, use the middle and ring fingers only. Do not puncture the side or very tip of the finger.
- Heel pricks should only be performed on babies under four months of age.
- The technique cannot be performed on poorly perfused, oedematous, inflamed or swollen tissues.
- Never obtain a sample from the fingers of neonates as they will become damaged due to their delicate nature.
- Alternate puncture and rotate puncture site as the blood flow will be reduced and tissue damage can occur to finger or heel if one site used continuously.

Procedure

1. Check patient identification and explain the procedure to the patient and/or legal parent/guardian as indicated and gain verbal consent. Ascertain any previous problems that the patient may have had and any allergies. Allow for time to answer questions and discuss problems which may have previously arisen.
2. Gather equipment necessary for procedure on a clean tray or receiver and carry to the patient.
3. Thoroughly wash and dry hands and put on gloves.
4. Select appropriate site.
5. Clean skin around site and allow to dry.
6. Use non dominant hand to hold limb.
7. Break the skin with suitable blood letting device.
8. Massage the skin around the puncture site to increase the blood flow and to recover the drops of blood.
9. Collect appropriate free flowing specimen.
10. Repeat the above procedure until sufficient blood is collected (usually about 0.5mls).

11. Wipe the punctured site with sterile gauze and ask the patient, or in the case of a young child or baby, the attending adult to hold the gauze until dressing is applied.
12. After procedure dispose of all sharps and clinical waste safely and correctly.
13. If samples are to be sent to the laboratory, label all bottles immediately at the patient's bedside and ensure that all details on specimen form are correct.
14. Place bottles in plastic sleeve with the specimen form and seal.
15. Despatch specimens to appropriate pathology department without delay.

Monitoring and Compliance

This section should identify how the Trusts plan to monitor compliance with and the effectiveness of this Treatment pathway. It should include auditable standards and/or key performance indicators (KPIs) and details on the methods for monitoring compliance.

WHAT?	HOW?	WHO?	WHERE?	WHEN?
These are the 'key' parts of the process that we are relying on to manage risk.	*What are we going to do to make sure the key parts of the process we have identified are being followed?*	*Who is responsible for the check?*	*Who will receive the monitoring results?*	*Set achievable frequencies.*
	Clinical Audit	Paediatric Clinical Governance Committee		Every 12 months
	Staff Electronic Record system	Local Managers/Staff		8-10 weeks
	Clinical Audit/Observation	Paediatric Clinical Governance Committee		
		S Weale, K Haley & R Delves		Yearly
	Review of Datix and completed "escalation trigger list"	Nursing Staff		
	6 Monthly Audit	CYP Nursing and Medical Staff		6 monthly
Viewing Arrangements	Spot checks	Children's wards or Emergency Departments	CYP Standards Committee, escalating to Trust Children's Board if required	Three times a year
Documentation – Completion of Checklist: Following the death of a CYP in hospital. Professional Contact List	Audit of checklists via CYP medical records	Children's Wards or Emergency Departments	CYP Standards Committee, escalating to Trust Children's Board if required	Three times a year

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Royal College of Nursing. (2005) RCN Competencies: an education and training competency framework for capillary blood sampling and venepuncture in children and young people.

Sandwell and West Birmingham Hospitals NHS Trust (2003) National Vocational Qualifications Unit B3 Accreditation in Obtaining Venous Blood Samples Using Invasive Techniques ; Training Programme

Willock J, Richardson J, Brazier A, Powell C, Mitchell, E (2004) Peripheral venepuncture in infants and children *Nursing Standard March 17/vol18/no27/2004*

Appendix 1

Choosing the right "Blood letting device"

A spring loaded self contained device gives a rapid precise incision that is consistent in depth and width. This minimise patient discomfort and safeguards the practitioner.

Several companies provide a range of blade/needle gauges and penetration depths. In general the larger the gauge and deeper the depth the more blood will be obtained.

If a single blood drop is required for a blood sugar a small gauge i.e. 28g and shallow depth i.e. 1-1.8mm should be used.

If a large volume of blood is required to fill paediatric blood bottles a larger gauge i.e. 18g or 1.5mm and deeper depth i.e. 1.8-2.2mm should be used.

Ranges commonly used within the W.A.H.T.

Product	Use	Depth	Width	Blood volume
BD Quikheel Preemie lancet	Blood tubes Blood spot test neonates	0.85mm	1.75mm	large
BD Quikheel Infant lancet	Blood tubes Blood spot test neonates	1.0mm	2.5mm	large
Unistik comfort	Blood sugar paeds	1.8mm	28g	Very small
Unistik dual	Blood tubes Paeds neonates	1.8mm	18g	large