



# WOMEN'S & NEWBORN HEALTH PROGRAM

## Policy & Procedure

<b>TITLE:</b> Capillary Blood Sampling For Infants Less Than 6 Months of Age in the Women's Newborn Health Program	<b>NUMBER:</b> 8530
<b>Sponsor:</b> Michelle LeDrew, Director Women's & Newborn Health Program	Page: 1 of 10
<b>Approved by:</b> Medical Advisory Committee	Approval Date: June 21 <sup>st</sup> , 2016 Effective Date: June 21 <sup>st</sup> , 2016
Applies To: Nurses (Registered Nurses and Licensed Practical Nurses) Neonatal Intensive Care Unit (NICU), Family Newborn Care Unit (FNCU), Birth Unit (BU) including Women's Newborn Health Resource Nurses. IWK/EHS Life Flight (Registered Nurses and Registered Respiratory Therapists)	

### **THIS CARE IS A BEYOND ENTRY LEVEL COMPETENCY (BELC) FOR NURSES PRACTICING AT THE IWK HEALTH CENTRE**

#### **POLICY STATEMENTS**

1. Capillary blood sampling will be performed by nurses and health professionals according to the following protocol.
2. This is a Beyond Entry Level Competency (BELC) for nurses in the Neonatal Intensive Care Unit (NICU), Family Newborn Care Unit (FNCU), Birth Unit (BU) including the Women's Newborn Health Resource Nurses and the IWK/EHS Life Flight /Transport Team and only Registered Respiratory Therapists (RRTs) for the EHS LifeFlight Team. It requires initial certification, demonstration of competency & recertification as per unit specific BELC guidelines based on frequency of performance of skill and ability to maintain skill.
3. Nurses and EHS LifeFlight RRTs will have demonstrated their competency in this skill by having completed the self-directed learning package (SDLP) Capillary Blood Sampling and demonstrated skill competency under the supervision of a certified practitioner.
4. All capillary blood samples will be performed in such a manner as to minimize skin trauma, pain and stress to the infant.

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## GUIDING PRINCIPLES AND VALUES

Capillary blood sampling is a painful procedure and has the potential of increasing morbidity and mortality to the infant through the following:

- Risk of sepsis
- Inadequate pain control
- Stress
- Trauma to the heel/foot

Minimizing these risks may positively impact the infant's recovery from illness. Principles related to pain assessment; neuroprotection & developmental care should be considered. These include but are not limited to positioning, 24% sucrose administration, thermoregulation, decreasing noise & lighting.

## GUIDELINES

Indications for Capillary Samples:

- Small amount of blood collection is needed. (less than 1.5 milliliters of blood)
- Venous or arterial samples are not possible or necessary.
- Collection of blood specimen for blood gas sampling, routine lab sampling and newborn screen.

Consider the following questions prior to collecting capillary blood samples:

- Is blood sampling needed?
- Is the blood sampling ordered routine, urgent or stat?
- Is capillary sampling or central venous access most appropriate? (e.g. Group and Cross, (Babyscreen in Meditech) and anticoagulants level require central samples)
- To minimize pokes, can the ordered test be added to previously drawn sample or to cluster with a future collection?
- Who is the most appropriate collector for the patient (i.e. is the patient appropriate for a learner or novice collector)?
- What is the best site and device for this patient's blood collection?
- Is the parent/caregiver available for pain control?
- Is the patient in a research study?

## PROTOCOL

1. Capillary blood sample requires a written or verbal order from an authorized prescriber or an approved care directive.
2. The infant will be positioned to minimize infant stress and maintain adequate thermoregulation. The preferred position for infants is skin to skin while breastfeeding. Placing the infant in skin to skin and administering 24% sucrose with nonnutritive sucking is acceptable if the preferred position cannot be attained.
3. Additional supportive measures may include: facilitated tucking and/or swaddling. Infants receiving capillary blood sampling should be assessed to receive 24% Sucrose oral solution as per Medication Management Policy/Procedure 20.36.

4. Selection of the appropriate site, device and collection tubes will follow the instruction and direction contained in the SDLP Capillary Blood Sampling.
5. The blood collection technique will follow the instruction and direction contained in the SDLP Capillary Blood Sampling.
6. If there have been 2 unsuccessful attempts per collection, the collector will seek assistance and/or notify the authorized prescriber and re-examine the method of sampling. Additionally, issues with samples such as hemolysis & clotting may require alternate collectors or methods.
7. Capillary blood sampling will be documented on the permanent health record. This includes the following:
  - 7.1 Number of attempts required for the specimen collection.
  - 7.2 Specific Collection site (i.e. inner/outer heel and right/left foot)
  - 7.3 Test collected
  - 7.4 Pain Score
  - 7.5 Comfort measures
  - 7.6 Medications given
  - 7.7 Time of collection
  - 7.8 Collector signature
  - 7.9 Respiratory Settings for Blood Gases (form #0374) if applicable & send to lab with sample.

## PROCEDURE

### Equipment

- Heel Warmer
- Pain Assessment Tool
- Nonsterile Gloves
- Lancet (select appropriate size based on patient's weight)
- Gauze
- Hospital approved antiseptic wipe (Appendix A)
- Bandage if required (Spot bandage not recommended for neonates)
- Appropriate Collection Containers

**Note:** (please see Capillary Blood Sampling Self Directed Learning Package for detailed collection techniques and Appendix B for helpful tips)

1. Verify order & labels. Assemble collection containers.
2. Identify infant (use two unique identifiers: Name & K #)
3. Position infant (skin to skin for 15 minutes prior to collection or breast feeding)
4. Perform hand hygiene & don gloves.
5. Choose appropriate site & warm foot. (Appendix B & C)
6. Cleanse site with health centre approved antiseptic solution & allow to air dry.  
(Appendix A)

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7. Firmly align lancet parallel against the length of the foot with the selected site (do not puncture through previous sites). Depress button on lancet.
8. Wipe away the first drop of blood.
9. Collect specimen in appropriate order (blood gas, hematology, chemistry, newborn screen, other). Ensure adequate volumes & specimen integrity (i.e. No air bubbles in gas sample).
10. Apply pressure to puncture site until bleeding stops.
11. Label specimen (including time of collection and collectors initials) and send to lab.
12. Document the following on the patient's healthcare record:
  - specimen collection
  - method (POC or capillary)
  - infant response
  - sample result
  - additional interventions

## REFERENCES

Cignacco, E., Sellam, G., Stoffel, L., Gerull, R., Nelle, M, Anand, K, et al. (2012). Oral sucrose and “Facilitated tucking” for repeated pain relief in preterms: A randomized controlled trial. *Pediatrics*, 129(2), 299-308.

Johnston C, Campbell-Yeo M, Fernandes A, Inglis D, Streiner D, Zee R. Skin-to-skin care for procedural pain in neonates (Full Review). *Cochrane Database Syst Rev*. 2014 Jan 23; 1: CD008435

MacDonald, M. G., Ramasethu, J., & Rais-Bahrami, K. (2013). Capillary blood sampling. *procedures in Neonatology* (5th ed., pp. 99-102). Philadelphia, PA: Lippincott Williams & Wilkins

Verklan, M, & Walden, M. (Eds) (2015) Core Curriculum for Neonatal Intensive Care Nursing (5th ed), pp. 239, 305-307. St. Louis, Saunders, an imprint of Elsevier Inc.

## RELATED DOCUMENTS

### Policies

IWK Clinical Policy 1100 Patient Identification.

IWK Infection Control Policy IC205.2 Hand Hygiene.

IWK Medication Management Clinical Practice Guidelines & Care Directive #80.46  
Guidelines for Neonatal Glucose Monitoring

IWK Laboratory Policy 3313 Heel Puncture Collection on Neonate & Infant (DRAFT).

IWK Laboratory Policy 3311 Identification and Handling of Diagnostic Laboratory Specimens.

IWK Laboratory Information System Policy 3301 Labeling of Specimens.

IWK Laboratory Policy 3302 Specimen Containers and Volumes.

IWK Medication Management Policy/Procedure 20.36 Oral Sucrose Administration for Minor Procedural Pain Management in Infants Less Than or Equal to 12 Months of Age.

IWK Medication Management Policy 10.11 24 Hour Medication Administration Record/cMAR.

IWK NICU Policy 40047 Infant Identification Policy

IWK NICU Policy 8665 Kangaroo Care: Skin –to- Skin Contact in NICU

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IWK Policy 1519 Pain Management.

IWK Policy 3101 Point of Care Testing

IWK Policy 3101.1 Blood Glucose Testing Using the Nova StatStrip and the StatStrip Xpress Glucose Meter - Point of Care Testing

Nova Scotia District Health Authorities/ IWK Policy 685.1 Breastfeeding.

IWK Self Directed Learning Package Capillary Blood Sampling.

### **Pamphlets**

Reducing Newborn Stress PL-0827

Skin to Skin Contact PL-0586

### **Videos**

NICU Developmental Care E Source Learning Video: Capillary Blood Gas Sampling.

The Power of a Parents Touch (2015) Downloaded on August 31, 2015 from  
<https://www.youtube.com/watch?v=3nqN9c3FWn8>

### **Appendices**

Appendix A - Health Centre Approved Antiseptic Solutions

Appendix B - Tips for Successful Collections

Appendix C - Appropriate Collection Sites

## Appendix A - Health Centre Approved Antiseptic Solutions

Gestational Age	Skin Preparation	Information
Less than 34 weeks (corrected age)	<b>2% AQUEOUS CHLORHEXIDINE GLUCONATE (alcohol-free)</b>	<ol style="list-style-type: none"> <li>1. Rapidity of action is rapid &amp; intermediate.</li> <li>2. Residual activity is excellent.</li> <li>3. <b>Use with Neonates less than 34 weeks gestation (corrected age).</b></li> <li>4. Potential to cause damage to the hearing or balance functions of the ear, nerve tissue, and blurred vision/decreased visual acuity with direct exposure.</li> <li>5. <b>Caution:</b> because of the risk of burns, antiseptic should not pool on skin especially in infants less than 28 weeks gestation).</li> <li>6. <b>Note:</b> Requires longer drying time as it is alcohol free.</li> </ol>
Equal to or greater than 34 weeks(corrected age)	<b>2% CHLORHEXIDINE in 70% ALCOHOL</b>	<ol style="list-style-type: none"> <li>1. Rapidity of action is rapid &amp; intermediate.</li> <li>2. Residual Activity is excellent.</li> <li>3. <b>Do not use on infant less than 34 weeks gestation (corrected age).</b></li> <li>4. Potential to cause damage to the hearing or balance functions of the ear, nerve tissue, and blurred vision/decreased visual acuity with direct exposure.</li> <li>5. <b>Caution:</b> because of the risk of burns, antiseptic should not pool on skin, especially in infants less than 28 weeks gestation).</li> </ol>

## Appendix B - Tips for Successful Collections

1. **Heel Warming:** The foot should be warmed for five (5) minutes before collection of a blood gas. **Note:** If blood gases are not requested, it is permissible to omit warming of foot prior to blood collection provided that a good flow of blood can be obtained. However if the infant is cold to the touch, warming the foot increases the blood flow sevenfold and allows for an easier collection with less squeezing and bruising, allowing for more accurate results.
2. Ensure foot cleansed & dry prior to sample collection & wipe away first drop of blood.
3. Apply appropriate pressure to the foot to produce blood flow. Avoiding excessive dorsiflexion of the infant's foot, alternately compress and release the heel, allowing for capillary refill between compressions. This will help prevent hemolysis of the sample and bruising of the foot.
4. Blood flow is increased if the puncture site is level or below the extremity.
5. **Microtainer Collection.** Position the microtainer at **30-45°** angle from the surface of the puncture site. Touch the scoop of the microtainer tube to the drop of blood and let the drop of blood run down the walls of the tube. Occasionally tap the tube gently to encourage the blood to settle to the bottom of the tube. When collecting the blood into the tube, avoid "scooping" the blood droplets to prevent hemolysis of the sample. Cap the microtainer with the correct colored top and mix 10 times. Gas tubes must not contain air bubbles.
6. Before applying labels to the tubes, ensure that you have written your initials, and the time of collection on the label. Label specimen at the bedside.
7. Ensure that you place the correct label on the correct tube before placing the tubes in the sealable plastic bag. Bar code is to be placed lengthways on the tube to ensure scanning of sample is possible.

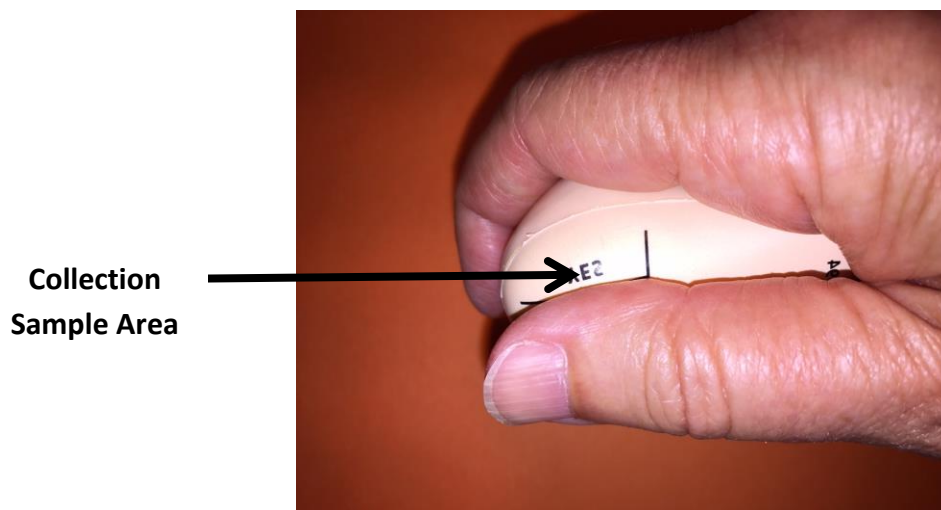


## Appendix C - Appropriate Collection Sites

Firmly align lancet parallel against the length of the foot with the selected site (do not puncture through previous sites). Hold in position, and depress button on top of lancet. See diagrams below for appropriate sites.



<https://www.bd.com/vacutainer/labnotes/Volume20Number1/>



Clinical Leader of Development demonstrating isolation of puncture site. (IWK, NICU 2015)

## District Health Authority/IWK Policies Being Replaced

This is a revision to an existing IWK Health Centre policy.

### Version History

(To Be Completed by the Policy Office)

<b>Major Revisions (e.g. Standard 4 year review)</b>	<b>Minor Revisions (e.g. spelling correction, wording changes, etc.)</b>
June 21, 2016	
2007	