

CAPILLARY BLOOD SAMPLING: HEEL STICK/FINGER STICK

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Critical Points

1. Adequate skin perfusion is necessary to obtain an appropriate capillary blood sample.
2. Heel sticks may be performed on infants up to 18 months of age.
3. Finger sticks are recommended in children over 18 months of age who require a specimen of less than 2.5 mL. Avoid calluses, scars or lesions.
4. Commercially available heel stick or finger stick device will be used for this procedure. Surgical blades or needles will not be used as they can too easily make an excessively deep or long puncture.

FOR BLOOD GAS SAMPLING

1. Patients with adequate blood pressure and peripheral perfusion will typically have good correlation of the pH, HCO₃, and PaCO₂ between the arterial and capillary sample. If peripheral perfusion is compromised, then capillary blood gas results will not correlate with arterial blood gas values. Arterial samples continue to be the most reliable method to evaluate oxygenation.
2. To optimize sample accuracy, the heel should be warmed for 5-7 minutes and a free-flowing specimen obtained.
3. When obtaining a capillary blood gas, ensure lab order is for a capillary blood gas and notify blood gas lab personnel prior to obtaining the blood gas, as the specimen needs to be processed immediately.

Supplies

- Heel stick device:
 - Infant (2500g – 9kg) (*PMM 45225*)
 - Preemie (1000 – 2500gm) (*PMM 45226*)
 - Micro-Preemie (< 1000gm) (*PMM 540454*)
- Finger stick device: (see [Fig. 4](#)) (*PMM 200105*)
- Clean gloves
- Blood collection container and/or capillary blood tube
- Alcohol pad or CHG/alcohol pad
- Sterile 2x2 gauze pad
- Adhesive bandage (optional)
- Chemical heel warmer (if not available, use warm cloth from blanket warmer)

CAPILLARY BLOOD SAMPLING: HEEL STICK/FINGER STICK (*continued*)**Procedure**

1. Gather supplies listed in [Supplies](#).
2. Verify correct patient and blood test using appropriate 2 patient identifiers.
3. Provide procedural support: swaddling, facilitated tucking, pacifier.
4. Obtain order for oral sucrose if appropriate and administer 2 minutes before heel stick; continue to administer via pacifier dips throughout the procedure. See [Oral Sucrose for Procedural Pain in the Infant](#).
5. Warm site for 5-7 minutes before puncture using a chemical heel warmer or a warm cloth from blanket warmer.
6. Perform hand hygiene and don clean gloves.
7. Select site.
 - a. Skin punctures should not be made through previously punctured sites, edematous or ecchymotic sites, or on the posterior curvature of the heel.
 - b. Use only the most medial or lateral plantar aspect of the heel to avoid injury to the medial calcaneal nerves and to the posterior tibial artery. (See [Fig. 1](#))
8. Cleanse site with an alcohol pad or alcohol/CHG pad for 15 seconds. Allow cleansing agent to dry.
9. For a heel stick:
 - a. Grasp the infant's heel with a gentle but firm grip.
 - b. Position lancet device and puncture skin. (See [Fig. 2](#)).
 - c. Facilitate blood collection by gently pressing and releasing your thumb against infant's heel. Severe dorsiflexion of the foot should be avoided.
 - d. Wipe and discard first drop of blood with sterile gauze pad.
 - e. Collect blood sample.
10. For infant older than 18 months of age, use side of third or fourth finger, near the tip. (See [Fig. 3](#).)
11. Obtain sample for blood glucose testing and any other necessary lab tests at the same time.
12. Hold dry 2x2 gauze over puncture site and dress when bleeding has stopped.

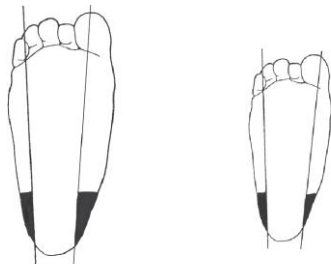


Fig. 1. Shaded areas indicate locations for heel stick sampling

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Fig. 2. Proper positioning of heel stick device

CAPILLARY BLOOD SAMPLING: HEEL STICK/FINGER STICK (*continued*)



Fig. 3. Shaded areas indicate locations for finger-stick sampling



Fig. 4. Finger stick device

References

Level of Evidence (FAME*)	Level*	Reference
	E4	Merenstein, G. B., & Gardner, S. L. (2021). <i>Merenstein and Gardner's Handbook of neonatal intensive care handbook of neonatal intensive care</i> . Elsevier.
	E4	Pillai Riddell, R. R., Racine, N. M., Gennis, H. G., Turcotte K., Uman L. S., Horton, R. E., et. al. (2015). Non-pharmacological management of infant and young child procedural pain. <i>Cochrane Database of Systematic Reviews, Issue 12. Art. No.: CD006275</i> . DOI: 10.1002/14651858.CD006275.pub3.

* FAME Scale details: See nursing policy [, Procedure, & Competency Development, Review, & Approval](#)

Procedure History

Originated:	10/85
Resources:	Jeannie Chan, RN, MS, CNS; Lori Fineman, RN, MS, CNS; Shelley Diane, RN, MS, CNS
Reviewed:	06/02
Reviewed / Revised:	1/04: Maureen Buick, RN; MaryKay Stratigos, RN; Alice Parker, RN; Emi Kotoh, RN 1/07: Steven Kloman, RN, MS, CNS 6/11: Cynthia Jensen, RN, MS, CNS 5/14: Linda Lefrak, RN, MS, CNS 6/16: Stephanie Mazely, RNC-NIC 10/18 Jeannie Chan, RN, MS, CNS; Elizabeth Papp, RN, MSN, CNS; Mary Kay Stratigos, RNC-NIC; Lori Fineman, RN, MS, CNS; Shelley Diane, RN, MS, CNS 2/22: Jeannie Chan, RN, MS, CNS