

Cord Blood pH - Collection and Handling

Applicability This document applies to all Central Zone – ECH personnel of AHS Laboratory Services and laboratories administered under the Covenant Health Group and the Lamont Health Centre collectively referred to here as Laboratory Services.

Purpose: This procedure is to provide instructions for the collection and handling of cord blood pH samples.

Materials:

- Blood Gas collection kit (includes anti-coagulated syringe, needle, and stoppers)
- Ice slurry (small ice chips mixed with cold water) for when the specimen cannot be analyzed immediately. *Large ice cubes in a dish or cup cannot surround the specimen and will not provide adequate cooling of the specimen*
- Biohazard bag

Specimen Requirements:

- 0.5 – 1.0 mL of blood from the umbilical artery (thicker wall & smaller lumen) collected in a blood gas syringe (see schematic of umbilical cord section)
NOTE: If collector is unable to determine umbilical artery from umbilical vein, samples may be collected from both vessels and submitted to laboratory for testing.

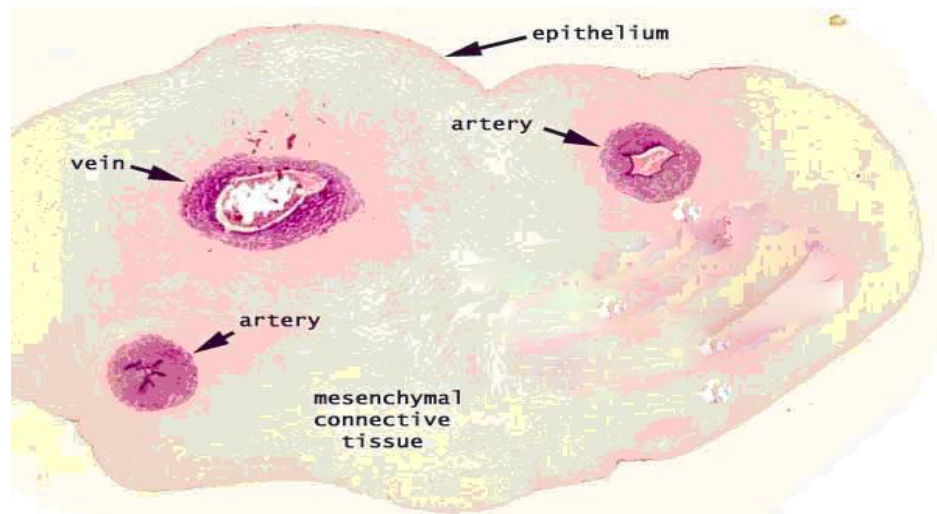
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- If the laboratory is open, specimens received in the lab and testing completed within 30 minutes of collection can remain at ambient temperature.
- If the laboratory is closed, specimens must be placed into **an ice slurry** and testing completed within 12 hours of collection.

**Rejection
Criteria:**

- Unlabelled specimens will NOT be accepted by the laboratory. In addition to standard patient identifier, the site (i.e. artery) must also be documented.
- Specimens which have air bubbles or clots are unsuitable for processing and will be rejected.
- Specimens received with the needle attached and not sealed with the provided stopper cap will be returned to the location of collection for needle removal.
- Specimens submitted not submerged in an ice slurry will be rejected if they cannot be processed within 30 minutes of collection.

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Procedure:

Step	Action	Notes	
Nursing Staff	<ul style="list-style-type: none"> Assemble the following equipment: <ul style="list-style-type: none"> 1 cord clamp blood gas collection kit(s) 1 biohazard bag/K basin with ice slurry (if required) Requisition Labels Enter test in MediTech and obtain labels. (Baby must be registered prior to ordering test). Ensure specimen is labeled with patient's full name, site (artery), date and time of delivery and collector's initials. 		
	If	Then	
	Laboratory closed	<ul style="list-style-type: none"> Place samples in a biohazard bag containing the ice slurry. Take sample to lab and place in specimen refrigerator. 	Specimens must be received in the lab and testing completed within 30 minutes if at room temperature and within 12 hours if in ice slurry.
Laboratory open	<ul style="list-style-type: none"> Place sample in a biohazard bag. Take sample to lab for testing. 	Inform lab staff of specimen arrival so that testing may be completed within 30 minutes.	
Physician	<ul style="list-style-type: none"> Clamp and cut cord as usual. Immediately double clamp a portion of the cord (approximately 4") that remains attached to the placenta. Cut off the 4" section that is clamped at either end and remove it to the scrub table to obtain sample. Sample must be obtained as soon as possible to prevent clotting. Open the Arterial Blood Gas Collection Kit and expel all of the air from the syringe. Identify the artery and the vein on the umbilical cord specimen. Aspirate 1 ml of blood from umbilical artery; expel any air from sample, remove needle and cap with rubber stopper. Label syringe with patient name, the site (artery), date and time of delivery and collector's initials. 		

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References:

- Umbilical Artery Blood Acid-Base Analysis; ACOG Technical Bulletin, No. 216, November 1995.
- AVL Opti 1 pH/Blood Gas Analyzer Operator's Manual, 1997.
- Clinical Guideline, Cord Blood Gases to determine Umbilical Artery Acid, Morton Hospital and Medical Centre, 1996.
- Changes in Oxygen Measurements When Whole Blood is Stored in Iced Plastic or Glass Syringes; Clinical Chemistry 37/7, 1244-1248 (1991)

Attachment: SPSF-0021 Blood Gas Testing Requisition

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