

**OLIVE VIEW-UCLA MEDICAL CENTER  
RESPIRATORY CARE SERVICES – NICU  
POLICY & PROCEDURE**

**NUMBER: 1954  
VERSION: 1**

**SUBJECT/TITLE:** ARTERIAL PUNCTURE

**POLICY:** Arterial sampling requires a doctor's order, collateral circulation (if radial artery is used) and following the proper procedures.

**PURPOSE:** To obtain samples for arterial blood gas determinations when venous and capillary sampling is not suitable.

**DEPARTMENTS:** RESPIRATORY CARE SERVICES

**DEFINITIONS:**

**PROCEDURE:** **Contraindications**

1. Coagulation defects
2. Circulatory compromise in the extremity
3. Inadequate collateral circulation (Negative Allen's Test)

**Preparation**

- Before any arterial sampling, confirm a written order is found in the patient's chart.
- Confirm the patient identity using three identifiers: DOB, verify patient identity with the nurse caring for the patient and the OVMC MRUN number.
- Wash hands and use PPE as required.
- Perform Allen's Test to assess collateral circulation. If negative, choose another site for sampling.

Allen's Test

1. Place neonatal patients hand in a tight fist or raise arm above heart level for several seconds
2. Apply direct pressure on the radial and ulnar arteries to obstruct arterial blood flow to hand while patient's fist is opened and closed rapidly several times.
3. Keep patients arm above heart level.
4. Keep the radial artery compressed when releasing the ulnar

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artery.

5. Examine the palmar surface for an erythematous blush occurs within 6 seconds.

#### Results

- Positive Allen's Test- erythematous blush occurs within 6 second indicates adequate collateral circulation.
  - Negative Allen's Test- pallor remaining after 6 seconds indicates inadequate collateral circulation.
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- Administer sucrose in accordance with the pain control policy.
  - The preferred site for an arterial puncture is the radial artery.
  - Comfortably extend the patients arm. Holding the wrist, bend at the elbow and press ipsilaterally to ribs firmly to prevent movement.
  - Position a small roll underneath the wrist for hyperextension or slightly hyperextend with your free hand.
  - Thoroughly cleanse the site with 2% chlorhexidine gluconate and 70% v/v isopropyl alcohol followed by a gentle wipe with a normal saline wipe.
  - Use a Blood Gas Syringe or a 23 gauge butterfly and a 1cc blood gas pre-heparinized syringe
  - Maintain an aseptic technique.

#### **Puncture Procedure**

- Use your index finger to locate the radial notch.
- Slowly move your finger towards the center of the wrist to locate the radial pulse. A good "rule of thumb" is that the pulse can be found  $\frac{1}{4}$  the width of the wrist.
- Once the pulse is located, hold your finger there and visualize the arteries position.
- With the other hand, place the needle, bevel up, on top of the pulse, at approximately a 45-degree angle.
- Firmly advance the needle until blood can be seen flowing into the syringe.
- Hold your position until the sample amount is complete.
- Place a gauze pad lightly over the insertion site and remove the needle.
- Apply pressure to the puncture site. Hold for 5 minutes.
- Slowly remove the gauze and watch for any bleeding. If bleeding is present, apply pressure to the site for another 5 minutes or until bleeding has stopped completely.
- Check for a pulse before and after the puncture.
- Do not use a bandage to cover the site.

#### **Post Puncture**

- Remove any air bubbles from the blood gas syringe.

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- Cap the blood sample immediately after withdrawal from patient. Send it directly to the lab with the appropriate label.
- Discard all your waste particles in their proper containers.
- Wash your hands.
- Document results of Allen’s Test on radial punctures, pre and post procedure site appearance and location.
- Length of time pressure held.

References:1. A.A.R.C. Uniform Reporting Manual Pg.D4. 2. Respiratory Care Pg.234-235. 3. CLIA final rule April 24 2003.	
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