

**OLIVE VIEW-UCLA MEDICAL CENTER  
POLICY & PROCEDURE**

**NUMBER: 1578  
VERSION: 2**

**SUBJECT/TITLE:** ARTERIAL PUNCTURE

**POLICY:** Arterial puncture may be performed by a Registered Nurse or Respiratory Care Practitioner certified in the procedure or while under the supervision of a RN providing training in the procedure.

Arterial puncture is performed according to the patients’ needs and physician’s orders.

Radial is the preferred site. An RN may **only** perform a femoral stick in a “Code Blue” situation.

**PURPOSE:** To provide a guideline for the nurse or respiratory therapist performing an arterial puncture including equipment preparation, artery selection, artery puncture, sample collection and handling.

**DEPARTMENTS:** All

**DEFINITIONS:** Arterial puncture is the percutaneous puncture of an artery to obtain an arterial blood sample for the purpose of evaluating oxygenation and ventilation.

**EQUIPMENT LIST:** Arterial Puncture Blood Gas Kit  
Gauze Pads  
Plastic Bag  
Gloves (Sterile gloves, if necessary)  
Chlorhexidine Based Antiseptic Solution

**PROCEDURE:**

Steps/Key Points	Rationale/Special Considerations
1. Verify order to obtain blood gas sample.	
2. Obtain specimen label for blood gas sample.	
3. Gather supplies/equipment.	
4. Perform hand hygiene and don personal protective equipment as necessary.	
5. Explain procedure to patient, provide education as needed.	

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6. Verify patient using two identifiers against the specimen label.	
7. Select site for puncture. a. For radial artery puncture, perform the Modified Allen’s Test (see Modified Allen’s Test procedure).	The Modified Allen’s Test has been recommended before a radial artery puncture to assess patency of the ulnar artery and an intact superficial palmar arch.
8. Prepare site with a chlorhexidine based antiseptic solution. a. Cleanse the site with a back and forth motion while applying friction for 30 seconds. b. Allow the solution to dry.	Limits the introduction of potentially infectious skin flora into the vessel during puncture.
9. Perform percutaneous puncture of the selected artery. a. Palpate and stabilize the artery with the index and middle fingers of the nondominant hand.  b. With the needle bevel up and the syringe at a 30-to 60-degree angle into the radial or brachial artery, puncture the skin slowly.  c. Observe the syringe for a flashback of blood.  d. If the puncture is unsuccessful, withdraw the needle to the skin	<p><b><i>Use sterile gloves if the site is palpated after it is antiseptically prepared.</i></b></p> <p>Increases the likelihood of correctly locating the artery and decreases the chance of the vessel rolling.</p> <p>A slow, gradual thrust promotes entry into the artery without inadvertently passing through the posterior wall.</p> <p>Pulsation of blood into the syringe verifies that the artery has been punctured.</p> <p>Prevents the necessity of a second puncture and changes the needle angle to facilitate the location of the</p>

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level, angle slightly toward the artery, and readvance. Do not withdraw the needle.	artery.
10. Obtain at least 1mL of blood.	An accurate ABG can be done with minimal blood volumes. Sample volumes may vary with equipment used. Obtain more than 1mL for rechecking and additional studies, as necessary.
11. Withdraw the needle while stabilizing the barrel syringe.	Prevents inadvertent aspiration of air during withdrawal.
12. Press gauze pad firmly over the puncture site for at least 5 minutes or until hemostasis is established. Never ask the patient to assist in applying pressure. Cover the puncture site with an adhesive bandage once hemostasis is achieved.	Hematomas and hemorrhage can occur if pressure is not applied and maintained correctly. If the patient were to fail to apply and maintain pressure correctly, the risk of hematoma and hemorrhage would increase.
13. Check the syringe for air bubbles and express any air bubbles by slowly ejecting some of the blood onto a 2X2 gauze pad.	Air bubbles can alter the PaO <sub>2</sub> results.
14. Activate the needle lock and seal the tip of the syringe immediately with the cap provided in the ABG syringe kit. Gently roll the syringe.	Prevents leakage of the blood and air from entering the sample. Mixes blood and heparin, thus preventing clot formation.
15. Label the specimen per policy.	
16. Expedite the delivery of the sample to the blood gas laboratory.	Ideally, the blood gas analysis should be performed within 10 minutes of collection to ensure the accuracy of results.
17. Discard used supplies in appropriate receptacles; dispose of needle(s) and other sharp objects in appropriate containers.	Reduces transmission of microorganisms. Standard Precautions. Safely removes sharp objects.

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18. Perform hand hygiene.	
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Patient monitoring and care:

Continue to monitor for adverse effects; e.g., hematoma, hemorrhage, limb ischemia, peripheral nerve damage.

- Notify physician and document any adverse reactions.

**DOCUMENTATION:**

Document the procedure in the electronic health record including the site, patient's tolerance, and any complication. Document the arterial blood gas results on the appropriate form and the name of the physician notified of the results, if applicable.

References: American Association of Critical Care Nurses, McHale Wiegand, D. (2013) AACN Procedure Manual for Critical Care (6th Ed.) Missouri: Elsevier.  Lynn-McHale Wiegand, D. and Carlson, K. (2005). <u>AACN Procedure Manual for Critical Care</u> (5 <sup>th</sup> Ed.). Philadelphia: W.B. Saunders Co.  Shapiro, B.A.; Peruzzi, W.T. & Templin, R. (1994). <u>Clinical application of Blood Gases</u> , (5 <sup>th</sup> Ed.). St. Louis: Mosby.	
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