HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Respiratory Care Services		
Document:	Multidisciplinary Policy And Procedure		
Title:	Obtaining Arterieal Blood Gases		
Applies To:	Respiratory Theparist, Physicians and Nurses		
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1. PURPOSE:

1.1 Arterial blood gas sampling by puncture is accomplished by aseptic technique with a needle and heparinized syringe to obtain a specimen for analysis.
1.2 To evaluate the efficiency of pulmonary gas exchange.
1.3 To assess the acid base status of the body whether alkalosis or acidosis, if respiratory or metabolic in origin and to what degree.
1.4 To provide important diagnostic information on:
  1.4.1 Adequacy of gas exchange in the lungs.
  1.4.2 Integrity of the ventilatory control system.
  1.4.3 Blood pH and acid - based balance.

2. DEFINITONS:

2.1 **Arterial Blood Gas Analysis** - evaluates gas exchange in the lungs by measuring the PaO2 and the pH of an arterial sample.

3. POLICY:

3.1 Respiratory Therapy Department safely and promptly obtains arterial blood samples for the purpose of monitoring ventilation and oxygenation of ICU patients.
3.2 The femoral artery shall not be used for arterial puncture unless it is highly indicated and by physician.
3.3 When a patent arterial line is in place, arterial samples will be drawn from the line, not by puncture.
3.4 When the radial artery site is chosen, an Allen Test will be used to determine if collateral circulation by the ulnar artery is adequate. The results of the Allen Test will be documented.
3.5 After blood sampling is obtained, apply pressure for a minimum of 5 minutes. If the patient continues to bleed after 5 minutes or if the physician has drawn femoral gases apply pressure for a minimum of 10 minutes.
3.6 Suctioning and/or changes in oxygen concentration or ventilator changes will precede arterial blood gas samplings by 20 to 30 minutes.
3.7 The respiratory care practitioners will run PO2, PCO2, pH, HCQ3 and SaO2 on all specimens received.
3.8 Umbilical artery blood gases will be obtained from the arterial line per physician's order to assess adequacy of oxygenation and ventilation.

4. PROCEDURE:

4.1 Verify physician's order
4.2 Check patient's record for precautions to be taken, such as in anticoagulant therapy.
4.3 Wash hands before the procedure.

4.4 Identify patient using two identifiers (four names for Saudi/ Complete name for the Non - Saudi and medical record number)
4.5 Introduce yourself to patient/next of kin and explain the procedure.
4.6 Wear gloves.
4.7 Palpate right and left radial pulses. Select the vessel with the most prominent pulse for puncture.
4.8 Perform the modified Allen Test on hand with best radial pulse to ensure adequate collateral circulation.
4.8.1 In the conscious, cooperative patient:
4.8.1.1 Compress both ulnar and radial arteries at the wrist to obliterate pulses.
4.8.1.2 Have patient clench and release a fist until blanching of the hand occurs.
4.8.1.3 With radial artery still compressed, release pressure on ulnar artery.
4.8.1.4 Watch for the return of pinkness to the hand.
4.8.2 In the unconscious, uncooperative patient:
4.8.2.1 Compress both ulnar and radial arteries at the wrist to obliterate pulses.
4.8.2.2 Elevate patient's hand above the level of his heart.
4.8.2.3 Lower patient's hand below the level of his heart.
4.8.2.4 With radial artery still compressed, release pressure on ulnar artery.
4.8.2.5 If pinkish fails to appear, collateral circulation may be assumed to inadequate. Inform physician that you are unable to obtain ABG.
4.8.2.6 A positive modified Allen Test denotes the presence of ulnar collateral flow.
4.9 Open ABG collection set, remove pre - heparinized syringe, needles, and syringe cap.
4.10 Assemble the syringe, keeping the chamber and tip sterile.
4.11 Attach needle to syringe, keeping needle in sterile protective cap.
4.12 Palpate the chosen radial artery as before, noting the point of maximal pulse. This will be the puncture site.
4.13 Stabilize the wrist in the position that presents the maximal pulse.
4.14 Rub the puncture site with an alcohol prep- pad.
4.15 Remove the needle cap, and at a 35° - 45° degree angle, pierce the skin at the puncture site and slowly advance the needle in one plane. When the artery is punctured, blood will enter the syringe. If the needle goes through the artery, slowly withdraw the needle until blood again appears in the syringe.
4.16 After enough blood has filled the syringe, withdraw the needle and immediately apply pressure directly on the puncture site with sterile gauze.
4.17 After applying pressure pad at the puncture site for a sufficient period of time, remove pressure pad and again palpate a pulse distal to puncture site.
4.18 Hold syringe vertically, gently tap the barrel and advance the plunger until it forces air bubbles out of the syringe.
4.19 Remove needle cap of the syringe. Gently roll the syringe between the palms of your hands to mix heparin and then label and place in specimen bag for transport.
4.20 Record ventilator parameters on appropriate clinical sheet if applicable.
4.21 Analyse the arterial blood and inform/ call results to the physician if there are panic values.
4.22 Document the date and time of stick, results of Allen Test, and which radial artery was used to perform puncture.

5. MATERIALS AND EQUIPMENT:

5.1 Sterile Gloves
5.2 Heparinized Syringe
5.3 Alcohol Swabs
5.4 Sterile Gauze
5.5 Flush Syringe

6. RESPONSIBILITIES:

6.1 Physicians
6.2 Respiratory Therapist
6.3 Nurses

7. APPENDICES:

7.1 N/A

8. REFERENCES:

8.1 AARC Clinical Practice Guidelines; Sampling for Arterial Blood Gas Analysis. Respiratory Care, 1992; 37:913-917.
8.2 Wilkins and Stroller Neonatal and Pediatric Respiratory Care Section Egan's Fundamentals of Respiratory Care, 8th Edition, 2003.
8.3 Giner J, Casan P, belda J,et al. Pain During Arterial Puncture. Chest, 1996; 110:1443- 5.

9. APPROVALS:

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