Lab Dept:	**Chemistry**
Test Name:	**VENOUS BLOOD GAS (VBG)**

General Information

Lab Order Codes:	VBG
Synonyms:	Venous blood gas
CPT Codes:	82803 - Gases, blood, any combination of pH, pCO2, pO2, CO2, HCO3 (including calculated O2 saturation)
Test Includes:	VpH (no units), VpCO2 and VpO2 measured in mmHg, VsO2 and VO2AD measured in %, HCO3 and BE measured in mmol/L, Temperature (degrees C) and ST (specimen type)

Logistics

Test Indications:	Useful for evaluating oxygen and carbon dioxide gas exchange; respiratory function, including hypoxia; and acid/base balance. It is also useful in assessment of asthma; chronic obstructive pulmonary disease and other types of lung disease; embolism, including fat embolism; and coronary artery disease.
Lab Testing Sections:	Chemistry
Phone Numbers:	MIN Lab: 612-813-6280 STP Lab: 651-220-6550
Test Availability:	Daily, 24 hours
Turnaround Time:	30 minutes
Special Instructions:	See Collection and Patient Preparation

Specimen

Specimen Type:	Whole blood
Container:	**Preferred:** Sims Portex® syringe (PB151) or Smooth-E syringe (956-463)
Draw Volume:	0.4 mL (Minimum: 0.2 mL) blood Note: Submission of 0.2 mL of blood does not allow for repeat analysis.

Processed Volume: 0.2 mL blood per analysis

Collection: Avoid using a tourniquet. Anaerobically collect blood into a heparinized blood gas syringe (See Container. Once the puncture has been performed or the line specimen drawn, **immediately** remove all air from the syringe. Remove the needle, cap tightly and gently mix. **Do not expose the specimen to air**. Forward the specimen immediately at ambient temperature. Specimens cannot be stored.

Note: When drawing from an indwelling catheter, the line must be thoroughly flushed with blood before drawing the sample.

Special Processing: Lab Staff: Deliver the specimen to the blood gas testing station. Testing must be completed within 30 minutes of collection or the sample should be immersed in an ice bath as soon as possible for delayed processing.

Patient Preparation: The patient should be in a relaxed and steady state. Anxiety or hyperventilation will affect results.

Sample Rejection: Clotted sample; mislabeled or unlabeled sample; sample containing air

Interpretive

Reference Range:

VO2 Saturation:	~75%
VpO2:	30 - 50 mm Hg
VpCO2:	40 – 52 mm Hg
VpH:	7.31 – 7.41
HCO3:	22 – 27 mEq/L
Base Excess (BE):	
Newborn (0-7 days):	-10 to -2 mmol/L
Infant (1 week-1 year):	-7 to -1 mmol/L
Child (1-16 years):	-4 to +2 mmol/L
Adult (>16 years):	-3 to +3 mmol/L

Critical Values: VpCO2: <15 or >70 mm Hg

VpH: <7.2 or >7.6

Limitations: N/A

Methodology:	Ion-Selective Electrode, HCO3 and BE by calculation
References:	Tietz, Norbert (1999) Clinical Guide to Laboratory Tests, 3rd edition, WB Saunders Co
	ABL800 FLEX Operator's Manual from software version 6.00, Publication: 201410, Edition: E, Code number: 994-909, www.radiometer.com
	Jacobs & DeMott Laboratory Test Handbook (2001) Lexi-Comp, Inc, Hudson, OH, 5th Edition
	ABL90 Flex Operator's Manual – from software Version 3.1xx Publication 201403 Edition H Code: 995-656
Update:	7/14/2005: Added clarification on draw volume for repeat analysis. 6/11/2018: Updated references