Lab Dept:	**Chemistry**
Test Name:	**CAPILLARY BLOOD GAS (CBG)**

General Information

Lab Order Codes:	CBG
Synonyms:	CBG
CPT Codes:	82803 – Gases, blood, any combination of pH, pCO2,pO2, CO2, HCO3 (including calculated O2 saturation)
Test Includes:	pH (no units), pCO2 measured in mmHg, HCO3 and BE measured in mmol/L, Temperature (°C) and ST (specimen type)

Logistics

Test Indications:	Capillary blood gas determinations are useful in monitoring neonates or other patients when arterial collection is not practical. Arteriolization of the capillary bed yields pH and pCO2 comparabe to arterial blood. 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.
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:	Lithium Heparinized Capillary blood gas tube tightly capped with internal mixing flea.

Draw Volume:

MIN campus: 0.14 mL (Minimum: 0.07 mL) blood
STP campus: 0.2 mL (Minimum: 0.1 mL) blood

Note: Submission of 0.1 mL of blood in one capillary tube does not allow for repeat analysis.

Processed Volume:

0.1 mL blood per analysis

Collection:

Perform a capillary puncture from an arteriolized site. Fill capillary tube completely without introducing air bubbles. Cap both ends and mix 20 times by gentle inversion. Forward immediately at ambient temperature only. **Do not** expose the specimen to air.

Do not mix capillary samples from neonates with a magnet. Use gentle and thorough inversion only.

Special Processing:

Lab Staff: Deliver the specimen to the blood gas testing station. Testing should be completed within 15 minutes of collection.

Patient Preparation:

The skin area to be punctured should be warmed to no more than 42°C for 3-10 minutes by applying an infant heel warmer. The patient should be in a relaxed and steady state

Sample Rejection:

Clotted specimen; unlabeled specimen or mislabeled specimens; specimens >30 minutes old; specimen contaminated with large air bubbles

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Interpretive

Reference Range:

pH:	7.35 – 7.45
PCO2:	
Males:	35 – 48 mm Hg
Females:	32 – 45 mm Hg
HCO3:	22 – 27 mEq/L
Base Excess:	
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:	pCO2: <15 or >70 mm Hg pH: <7.2 or >7.6
Limitations:	N/A
Methodology:	Ion-Selective Electrode, HCO3 and BE by calculation
References:	Tietz, Norbert (1995) Clinical Guide to Laboratory Tests, 3rd edition, WB Saunders Co, pp 1081-1084 ABL 800 FLEX Operator's Manual, Publication 201410, Edition E, Code Number 994-909, 2008 Radiometer Medical ApS Jacobs and DeMott (2001) Laboratory Test Handbook, 5th edition, Lexi-Comp, Inc., Hudson, Ohio, p 21 ABL90 FLEX Operator's Manual, Publication 201403, Edition H, Code 996-656
Update:	7/14/2005: Added clarification on draw volume for repeat analysis. 4/22/2010: TAT update, previously listed as 1 hour, updated references 8/8/2024: Changed collection req. of 2 cap tubes to 1 cap tube.