

Legacy Laboratory Services

Legacy Lab Alert

December 2020

An Important Update from Legacy Laboratory Services

Update: Ionized Calcium Reference Ranges and Sample Type Change

Effective January 5, 2021, Legacy Laboratory Services will change ionized calcium reference ranges as well as the acceptable sample types. Legacy Emanuel and Good Samaritan Laboratories will replace their current instruments, Nova CCX, with the same instrumentation used in Legacy Health's Respiratory Therapy departments, Siemens RapidPoint 500. This will allow standardization of ionized calcium methods and reference ranges across departments at Legacy Health. The changes described below will only affect testing in the main laboratory (current ordering mnemonics: CA ION S and CA ION P). Ionized calcium testing in Respiratory Therapy is unaffected (ordering mnemonic: RT CA ION). Other Legacy Laboratories will continue to follow their current process for ionized calcium testing.

- Ordering mnemonic for ionized calcium in whole blood will change from CA ION P to CA ION WB.
- Ionized calcium reference ranges will be updated for serum (CA ION S) and whole blood (CA ION WB). Laboratory reference ranges for whole blood will match Respiratory Therapy reference ranges (RT CA ION). Critical values will remain the same for all orderables. Table 1 summarizes the current and new reference ranges.
- Lithium Heparin plasma and whole blood collected in mint green top tubes (PST) will **NOT** be accepted. During our validation process, we noticed a bias between heparinized syringes and the mint green top tubes. For a complete list of specimen requirements, refer to Table 2.
- Serum stability has been increased based on in-house studies (Table 2).
- The reportable range will widen from 0.10 – 2.70 mmol/L to 0.20 – 3.74 mmol/L.

Table 1: NEW Reference Ranges for Ionized Calcium - Differences from previous testing are in red font.

AGE	Calcium Ionized Level WB (CA ION WB - previously CA ION P)		Calcium Ionized Outreach Serum (CA ION S)	
	Current (Prior to 1/5/21)	NEW* (Starting 1/5/21)	Current (Prior to 1/5/21)	NEW (Starting 1/5/21)
0 - 23 hours	1.08-1.28 mmol/L	1.08-1.28 mmol/L	1.08-1.28 mmol/L	1.08-1.28 mmol/L
24 – 47 hours	1.00-1.18 mmol/L	1.00-1.18 mmol/L	1.00-1.18 mmol/L	1.00-1.18 mmol/L
≥2 days	1.14-1.33 mmol/L	1.12-1.26 mmol/L	1.14-1.40 mmol/L	1.12-1.30 mmol/L

*NOTE: New whole blood reference ranges for the Lab are the same reference ranges used by Respiratory Therapy.

Table 2: NEW Specimen Requirements – New specimen requirements are summarized below. Differences from previous testing are in **red** font.

Test Name (Cerner and EPIC)	Calcium Ionized Level WB	Calcium Ionized Outreach Serum
Mnemonic	CA ION WB (changed from CA ION P)	CA ION S
Patient Population	Inpatient, ED, and/or Surgical	Outreach
Collect	Whole Blood, one lithium heparin blood gas syringe	Serum, one 5.0 mL gold (SST) top tube Due to processing requirements for this test, sharing specimen with other testing is not feasible. If other tests are ordered, please submit separate specimen(s).
Handling	All specimens should be collected under anaerobic conditions. For anaerobic samples, do not remove the specimen cap before analysis. Any loss of CO ₂ will increase the pH, which decreases ionized calcium. Do not store specimens on ice. Whole blood in syringe should be analyzed within 30 minutes of collection.	All specimens should be collected under anaerobic conditions. For anaerobic samples, do not remove the top of the tube before analysis. Any loss of CO ₂ will increase the pH, which decreases ionized calcium. Do not store specimens on ice. Allow blood in gold top tube to clot completely, at least 30 minutes. Spin tube within 1 hour of collection. Do not remove top from tube. NOTE: If testing of serum will be delayed by more than 72 hours, the sample may be aliquoted and frozen. Exposure to air must be minimized as much as possible during the aliquoting process.
Preferred Volume	1.0 mL Heparinized whole blood	1.0 mL Serum
Minimum Volume	0.5 mL Heparinized whole blood	0.5 mL Serum (1.2 mL minimum whole blood draw)
Transport	Transport at room temperature (18-26°C) within 30 minutes of collection.	Refrigerated (2-8°C)
Rejection Criteria	<ul style="list-style-type: none"> Severely hemolyzed specimens Specimens collected using one of these anticoagulants: Lithium heparin in mint green top tubes, sodium heparin, EDTA, citrate, and potassium oxalate/ sodium fluoride 	<ul style="list-style-type: none"> Severely hemolyzed specimens Specimens collected using one of these anticoagulants: Lithium heparin in mint green top tubes, sodium heparin, EDTA, citrate, and potassium oxalate/ sodium fluoride
Unspun at Room Temperature (18-26 °C)	-----	1 hour
Stability	Room Temp. (18-26 °C)	30 minutes
	Refrigerated (2-8 °C)	30 minutes
	Frozen (≤ -20 °C)	Unacceptable
	Freeze-Thaw Cycles	Unacceptable
Performed	7 days a week	7 days a week
Reported	1 hour	24 hours
Method	Ion Selective Electrode (Siemens RapidPoint 500)	Ion Selective Electrode (Siemens RapidPoint 500)
CPT Codes	82330	82330

For additional information, please contact your account representative, client services or consult our website: Legacy Laboratory Client Services: 503-413-1234, 877-270-5566, www.legacyhealth.org/labservices