

Critical Values List

Note: Some analytes in the list are required by contractual obligations.

Spectrum Health Laboratory Critical Values List Given values are not inclusive for being critical.		
Test	Critical Low Value (Less Than)	Critical High Value (Greater than)
Chemistry – Infants and Children		
Bilirubin (age 0 to 30 days)	N/A	See Bilirubin - Infant by Age (in hours)
Glucose (age 0 to 90 days)	42 mg/dL	200 mg/dL
Glucose (age 91 days to 18 years)	50 mg/dL	300 mg/dL
pH Cord Arterial	7.00	N/A
pH Cord Venous	7.00	N/A
Potassium (age 0 to 90 days)	2.5 mmol/L	6.5 mmol/L
Sodium (age under 18 years)	129 mmol/L	160 mmol/L
Chemistry & Toxicology – Children and Adults		
Amikacin Peak	N/A	≥80 µg/mL
Amikacin Trough	N/A	≥10 µg/mL
Ammonia	N/A	150 µmol/L
Amylase	N/A	500 IU/L
Bilirubin (age 31 days and older)	N/A	15 mg/dL
Bicarbonate	10 mmol/L	40 mmol/L
BUN	N/A	100 mg/dL
Calcium	6.5 mg/dL	12.0 mg/dL
Carbamazapine	N/A	15 µg/mL
CO ₂ (BR)	15 mmol/L	40 mmol/L
Creatinine	N/A	10 mg/dL
Digoxin	N/A	2.5 ng/mL
Ethanol	N/A	400 mg/dL
Gentamicin Peak	N/A	≥40 µg/mL
Gentamicin Trough	N/A	≥ 2 µg/mL
Glucose (age 18 years and older)	50 mg/dL	400 mg/dL
HIV (Quick test)	N/A	Positive
Ionized Calcium	0.85 mmol/L	1.60 mmol/L
Lactic Acid	N/A	3.0 mmol/L
Lidocaine	N/A	6.0 mcg/mL
Lithium	N/A	1.5 mEq/L
Magnesium (Critical high maternity)	1.2 mg/dL	3.5 mg/dL 8.0 mg/dL
pH (Venous whole blood)	7.2	7.5
Phenobarbital	N/A	60 µg/mL
Phenytoin	N/A	30 µg/mL
Phenytoin (free)	N/A	3 µg/mL
Phosphorus	1.0 mg/dL	N/A
Potassium (age 91 days and older)	3.0 mmol/L	6.0 mmol/L
Salicylates	N/A	30 mg/dL
Sodium (age 18 years and older)	120 mmol/L	160 mmol/L
Theophylline	N/A	25 µg/mL
Tobramycin Peak	N/A	≥40 µg/mL
Tobramycin Trough	N/A	≥ 2 µg/mL
Troponin I (BR)	N/A	0.60 ng/mL
Troponin T	N/A	0.09 ng/mL

Test	Critical Low Value (Less Than)	Critical High Value (Greater than)
Uric Acid	N/A	15 mg/dL
Valproic Acid	N/A	150 µg/mL
Valproic Acid (free)	N/A	20 µg/mL
Vancomycin Trough	N/A	≥ 25 µg/mL or < 8 µg/mL
Bilirubin - Infant by Age (in hours)		
Bilirubin (age 0 to 12 hours)	N/A	4.0 mg/dL
Bilirubin (age 12 to 18 hours)	N/A	6.5 mg/dL
Bilirubin (age 18 to 24 hours)	N/A	7.5 mg/dL
Bilirubin (age 24 to 26 hours)	N/A	8.1 mg/dL
Bilirubin (age 26 to 28 hours)	N/A	8.6 mg/dL
Bilirubin (age 28 to 30 hours)	N/A	9.2 mg/dL
Bilirubin (age 30 to 32 hours)	N/A	9.7 mg/dL
Bilirubin (age 32 to 34 hours)	N/A	10.3 mg/dL
Bilirubin (age 34 to 36 hours)	N/A	10.8 mg/dL
Bilirubin (age 36 to 38 hours)	N/A	11.4 mg/dL
Bilirubin (age 38 to 40 hours)	N/A	11.9 mg/dL
Bilirubin (age 40 to 42 hours)	N/A	12.3 mg/dL
Bilirubin (age 42 to 45 hours)	N/A	12.5 mg/dL
Bilirubin (age 45 to 48 hours)	N/A	13.0 mg/dL
Bilirubin (age 48 to 51 hours)	N/A	13.5 mg/dL
Bilirubin (age 51 to 54 hours)	N/A	14.0 mg/dL
Bilirubin (age 54 to 57 hours)	N/A	14.5 mg/dL
Bilirubin (age 57 to 60 hours)	N/A	15.0 mg/dL
Bilirubin (age 60 to 66 hours)	N/A	15.5 mg/dL
Bilirubin (age 66 to 72 hours)	N/A	15.9 mg/dL
Bilirubin (age 72 to 78 hours)	N/A	16.3 mg/dL
Bilirubin (age 78 to 84 hours)	N/A	16.7 mg/dL
Bilirubin (age 84 to 90 hours)	N/A	17.1 mg/dL
Bilirubin (age 90 hours to 30 days)	N/A	17.5 mg/dL
Coagulation		
Fibrinogen	100 mg/dL	N/A
INR	N/A	5.0
Activated APTT	N/A	100 seconds
Factor Assay	15 %	N/A
Low Molecular Weight Heparin	N/A	1.2 U/mL
Unfractionated Heparin Level	N/A	>1.0 U/mL
Hematology – Infants / Children		
WBC (age 0 to 30 days)	4x10 ³ /µL	25x10 ³ /µL
WBC (age under 13 years)	2x10 ³ /µL	25x10 ³ /µL
Hemoglobin (age 0 to 30 days)	10 g/dL	22.5 g/dL
Hemoglobin (age 31 to 90 days)	8 g/dL	22.5 g/dL
Hematology – Children / Adults		
WBC (age 13 years and older)	2x10 ³ /µL	35x10 ³ /µL
Hemoglobin (age 91 days and older)	7 g/dL	20 g/dL
Platelets	50,000/µL	900,000/µL
Blood Smear Examination	Presence of intracellular organisms (including malaria)	
CSF Smear Examination	Presence of intracellular bacteria	
ImmunoChemistry		
Legionella Antigen, Urine	NA	Positive

Test	Critical Low Value (Less Than)	Critical High Value (Greater than)
Respiratory Satellite Labs		
Arterial Blood Gases:		
pH	7.2	7.6
pCO ₂ (age 0 to 90 days)	35 mmHg	70 mmHg
pCO ₂ (age 91 days and older)	25 mmHg	70 mmHg
pO ₂ (age 0 to 90 days)	40 mmHg	150 mmHg
pO ₂ (age 91 days and older)	60 mm Hg	N/A
Capillary/Venous Gases:		
pH	7.2	7.5
pCO ₂	35 mmHg	75 mmHg
pO ₂	20 mmHg	80 mmHg
Carboxyhemoglobin	N/A	6 %
Hemoglobin O ₂ Saturation	50 %	N/A
Methemoglobin	N/A	2.5 %
Microbiology		
Positive Gram stains and cultures on: <ul style="list-style-type: none"> • Cerebrospinal fluid (CSF) • Blood • Stem cells • Bone and bone aspirates (pre- or post-infusion) • Sterile sites (e.g., pericardial, synovial fluids) • Brain tissue or abscess • Intraocular fluid Positive blood smears for parasites Positive cryptococcal antigen test <i>Clostridium difficile</i> toxin positive stools.		
See policy Critical Values – Microbiology and Virology for a more extensive list of critical and alert values.		
Perinatal Pathology		
<ul style="list-style-type: none"> • Specific infections diagnosable by microscopic exam and special stains (HSV, CMV, and Candida) • Acute villitis, suggestive of listeria or other maternal infection • Evidence of a maternal or fetal malignancy or metastatic disease • Evidence of a metabolic disease, e.g. storage disease • Evidence of dyserythropoiesis • Absence of villi and trophoblasts in a products of conception specimen where there has not been confirmation of an intrauterine pregnancy 		
Urinalysis		
Ketones and Glucose (age under 10 years)	Positive ketones with urine glucose greater than or equal to 500 mg/dL	

References: Clinical Policy: Critical Test and Critical Test Results CPOL-C00-S2944
[Critical and Alert Values-Microbiology and Virology](#)
[Critical Values Policy for the Laboratory](#)