

Document History:

Title: Clinical Biochemistry
Critical Values **Site(s):** Shared Health

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Section:	Clinical Biochemistry	Subsection:	General

Approved by: Signature:	Dr L Thorlacius 	Date:	27 Feb 2019
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#	Details of Revisions:	Approval:	Date:
1	New document		
2	Line 38. Theophylline (< 16 yrs.) corrected to Theophylline (Neonate < 30 d)	Dr. Laurel Thorlacius	Sept 9, 2010
3	•Added note 2.4 regarding critical values on the iSTAT •Added critical value for corrected calcium •Critical value for salicylate decreased to 500 mg/L •Removed critical values for Bayer TnI and TnT, added critical value for hsTnT	Dr. Laurel Thorlacius	18-Dec-2012
4	Removed Troponin I – Dade (see point 42) as this test is discontinued (replaced by Troponin T hs)	L Thorlacius	09-Jan-2014
5	Clarified point 2.1 for hypoglycemia in outpatients.	L. Thorlacius	09-Nov-2017
6	Update to vancomycin critical result to > 25 mg/L	C. Oleschuk	January 24, 2018
7	Updated Vancomycin critical result to >28 mg/L	L Thorlacius	25 Jan 2019
8	Edited note 2.2 for clarification	H Malvern	27 Feb 2019

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1. **Purpose:** To provide biochemistry-specific test result limits to accompany policy # 100-10-06 "Reporting Critical Values".
2. **Notes:**
 - 2.1 For hypoglycemia in outpatients, critical values will not apply. Low critical values will apply to all inpatient and Emergency or Urgent Care locations (Line 19).
 - 2.2 Troponin excludes patients currently in critical care areas including Emergency (Line 42).
 - 2.3 For drug levels, if it is unclear if the result pertains to a peak or trough drug value, assume it is a trough. Use the critical value associated with that drug's trough.
 - 2.4 For reporting critical results from the iSTAT, follow SOP 110-10-04. iSTAT critical results are not significantly different from those below. The flags for critical results on the iSTAT are not modifiable.
 - 2.5 For labs that report corrected calcium, the critical result should be called based on the corrected calcium result only. For lab that report only calcium, the critical result should be called based on the calcium result.

Analyte	Critical Value	Frequency
1. Acetaminophen	> 50 mg/L	Once / 72 hrs
2. Amikacin	Trough > 15 mg/L Peak > 40 mg/L	Each Event Each Event
3. Amitriptyline & Nortriptyline	> 1000 µg/L	Once / 72 hrs
4. Ammonia (< 16 yrs.)	> 100 µmol/L	Once / 72 hrs
5. Beta-OH-Butyrate	> 5 mmol/L	Once / 72 hrs
6. Calcium (see note 2.5)	< 1.65 / > 3.25 mmol/L	Once / 24 hrs
Corrected Calcium (see note 2.5)	< 1.65 / > 3.25 mmol/L	Once / 24 hrs
7. Carbamazepine	> 20 mg/L	Each Event
8. Carboxyhemoglobin	> 40%	Once / 72 hrs
9. Chloride	< 75 / > 126 mmol/L	Once / 72 hrs
10. Clomipramine	> 500 µg/L	Once / 72 hrs
11. CSF Glucose	< 2.0 mmol/L	Once / 72 hrs
12. CSF Protein	> 1.9 g/L	Once / 72 hrs
13. Desipramine	> 1000 µg/L	Once / 72hrs
14. Digoxin	> 2.5 µg/L	Once / 72 hrs
15. Doxepin & Desmethyldoxepin	> 1000 µg/L	Once / 72 hrs
16. Ethosuximide	> 200 mg/L	Once / 72 hrs
17. Ethylene Glycol	Present	Once / 72 hrs
18. Gentamicin	Trough > 3 mg/L	Each Event
19. Glucose	< 2.5 / > 25 mmol/L	Once / 72 hrs
Glucose (Neonate < 30d)	< 1.7 / > 18 mmol/L	Once / 72 hrs
20. Imipramine & Desipramine	> 1000 µg/L	Once / 72 hrs
21. Ionized Calcium	< 0.75 / > 1.63 mmol/L	Once / 72 hrs
22. Isopropanol	Present	Once / 72 hrs
23. Lactate	> 5 mmol/L	Once / 72 hrs
24. Lithium	> 2.0 mmol/L	Once / 72 hrs
25. Magnesium	< 0.4 / > 2.0 mmol/L	Once / 72 hrs
26. Maprotiline	> 1000 µg/L	Once / 72 hrs

Analyte	Critical Value	Frequency
27. Methanol	Present	Once / 72 hrs
28. Nortriptyline	> 1000 µg/L	Once / 72 hrs
29. Phenobarbital	> 60 mg/L	Each Event
30. Phenytoin	> 40 mg/L	Once / 72 hrs
31. Phosphate	< 0.32 / > 5.0 mmol/L	Once / 24 hrs
32. Potassium (Infants < 2 mos)	< 2.5 / > 7.0 mmol/L	Each Event
Potassium (Adults & > 2 mos)	< 2.5 / > 6.5 mmol/L	Each Event
33. Primidone	> 24 mg/L	Once / 72 hrs
34. Salicylate	> 500 mg/L	Once / 72 hrs
35. Sodium	< 120 / > 160 mmol/L	Once / 72 hrs
36. Total Bilirubin (Neonate < 30 d)	> 300 µmol/L	Once / 72 hrs
37. Total CO ₂	< 10.0 / > 40.0 mmol/L	Each Event
38. Theophylline	> 25 mg/L	Once / 72 hrs
Theophylline (Neonate < 30 d)	> 15 mg/L	Once / 72 hrs
39. Thiocyanate	> 100 mg/L	Once / 72 hrs
40. Tobramycin	Trough > 3 mg/L	Each Event
41. Trimipramine & N-Desmethyltrim.	> 1000 µg/L	Once / 72 hrs
42. Troponin T hs (high sensitive)	> 40 ng/L	First positive
Troponin I - IStat	> 0.10 µg/L	First positive
43. Urea (< 1 yr)	> 25 mmol/L	Once / 72 hrs
44. Uric Acid	> 800 µmol/L	Once / 72 hrs
45. Valproic Acid	> 200 mg/L	Once / 72 hrs
46. Vancomycin	Trough > 28 mg/L	Each Event

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- November 2008 CAP Today, Emory University
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