

## Phone Reporting Guideline of Critical Results in Chemical Pathology

1. All Duty Biochemists or shift duty Medical Technologists shall follow this procedure.
2. The test (s) requested for reporting location equipped with the Critical Result Alarm System (CRAS) will be automatically alerted of all critical laboratory results (except for serum morning cortisol) listed in Table 1.
3. If the CRAS alert is not acknowledged within 10 minutes, the alert will be bounced back to PWH Chemical Pathology Laboratory. For reporting location without CRAS, bounce-back alert will be triggered to PWH Chemical Pathology Laboratory. The critical laboratory result(s) will then be phoned through by the Rapid Response Laboratory staff to either clinician or nurse.
4. Identify the patient with name, HKID, bed number and collection time of specimen before phoning the critical result(s).
5. Ensure that the results are correctly recorded and advise clinician / nurse to retrieve the result via electronic patient record.
6. The comment will be entered into the patient report as follows:

“(Test Name) result was phoned to Dr/Mr/Ms XXX (rank/location) at hh:mm on DD/MM/YYYY

**Table 1: Critical Limits of Chemical Pathology Tests in PWH.**

Analyte	Phone If Less Than	Phone If Greater Than	Reference Interval
Blood Bicarbonate	10 mmol/L	50 mmol/L	18 - 23 mmol/L
Blood pH	7.10	7.58	7.35 - 7.45
CSF Glucose	1.9 mmol/L	Not applicable	2.2 - 3.9 mmol/L
Plasma Ammonia	Not applicable	200 $\mu$ mol/L	0 - 1 day < 144 $\mu$ mol/L 2 - 5 day < 134 $\mu$ mol/L 6 day - 16 yr < 48 $\mu$ mol/L adult male < 55 $\mu$ mol/L adult female < 48 nmol/L
Plasma Amylase	Not applicable	1,000 U/L	Female: 35 - 122 U/L (at 37 °C) Male: 33 - 120 U/L (at 37 °C)

Plasma Calcium (Albumin-adjusted)	1.50 mmol/L	3.00 mmol/L	2.15 - 2.55 mmol/L
Plasma Cardiac Troponin T (hsTnT) [ <i>Only urgent hsTnT result will be phoned to requesting location by urgent laboratory staff for bounce-back CRAS alert.</i> ]	Not applicable	100 ng/L	The 99th percentile of cardiac troponin T for normal population is less than 14 ng/L.  If 1st hsTnT is > 14 ng/L, a 2nd hsTnT is recommended at 3 - 6 Hr later to determine % increase from baseline level. The diagnosis of acute myocardial infarction is highly suggestive if any hsTnT shows a value > 14 ng/L and a % increase > 100% from baseline.
Plasma Glucose	a) 2.5 mmol/L  b) 1.6 mmol/L for neonate < 28 days	25 mmol/L	Non-diabetic: < 5.6 mmol/L  Impaired fasting glucose: 5.6 - 6.9 mmol/L  Diabetes mellitus: ≥ 7.0 mmol/L
Plasma Ionised Calcium	0.75 mmol/L	1.50 mmol/L	1.13 - 1.32 mmol/L
Plasma Phenytoin	Not applicable	99 µmol/L	Therapeutic range: 40 - 80 µmol/L  Nystagmus often appears: 81 - 99 µmol/L  Ataxia may be observed: 100 - 119 µmol/L  Dysarthria may present: > 158 µmol/L
Plasma Potassium	2.5 mmol/L	6.2 mmol/L	Female: 3.5 – 5.0 mmol/L Male: 3.5 – 5.0 mmol/L
Plasma Sodium	120 mmol/L	155 mmol/L	Female: 137 - 144 mmol/L Male: 137 - 144 mmol/L
Plasma Theophylline	Not applicable	166 µmol/L	56 - 111 µmol/L
Plasma Total Calcium	1.50 mmol/L	3.00 mmol/L	2.15 - 2.55 mmol/L
Plasma Triglyceride (fasting or non-fasting)	Not applicable	20 mmol/L	Adults (>/= 18 years) Desirable fasting triglyceride: < 1.7 mmol/L

			<p>Desirable non-fasting triglyceride: &lt; 2.0 mmol/L</p> <p>Paediatric patient (0 - 9 years) Fasting and non-fasting triglyceride: &lt; 0.8 mmol/L</p> <p>Paediatric patient (10 - 18 years) Fasting and non-fasting triglyceride: &lt; 1.0 mmol/L</p>																												
Serum Digoxin	Not applicable	2.6 nmol/L	1.2 - 2.6 nmol/L (> 6 Hr post dose)																												
Serum Free Thyroxine (FT4)	Not applicable	100 pmol/L	<p>Non-pregnant individual:</p> <p>0 - &lt; 6 days: 11.0 - 32.0 pmol/L &gt; 6 days - &lt; 90 days: 11.5 - 28.3 pmol/L &gt; 90 days - &lt; 1 year: 11.9 - 25.6 pmol/L &gt; 1 - &lt; 6 years: 12.3 - 22.8 pmol/L &gt; 6 - &lt; 11 years: 12.5 - 21.5 pmol/L &gt; 11 years: 12.0 - 22.0 pmol/L</p> <p>During pregnancy (gestational age-specific):</p> <table border="0"> <thead> <tr> <th>Gestational Age (Week)</th> <th>FT4 (pmol/L)</th> </tr> </thead> <tbody> <tr><td>≤ 5</td><td>11.6 - 23.0</td></tr> <tr><td>&gt; 5 - 6</td><td>11.9 - 23.8</td></tr> <tr><td>&gt; 6 - 7</td><td>12.1 - 24.5</td></tr> <tr><td>&gt; 7 - 8</td><td>12.1 - 24.5</td></tr> <tr><td>&gt; 8 - 9</td><td>12.1 - 24.5</td></tr> <tr><td>&gt; 9 - 10</td><td>11.9 - 23.9</td></tr> <tr><td>&gt; 10 - 11</td><td>11.7 - 23.3</td></tr> <tr><td>&gt; 11 - 12</td><td>11.4 - 22.8</td></tr> <tr><td>&gt; 12 - 13</td><td>11.2 - 22.2</td></tr> <tr><td>&gt; 13 - 14</td><td>11.0 - 21.6</td></tr> <tr><td>&gt; 14 - 15</td><td>10.7 - 21.0</td></tr> <tr><td>&gt; 15 - 16</td><td>10.5 - 20.5</td></tr> <tr><td>&gt; 16 - 20</td><td>10.1 - 19.4</td></tr> </tbody> </table>	Gestational Age (Week)	FT4 (pmol/L)	≤ 5	11.6 - 23.0	> 5 - 6	11.9 - 23.8	> 6 - 7	12.1 - 24.5	> 7 - 8	12.1 - 24.5	> 8 - 9	12.1 - 24.5	> 9 - 10	11.9 - 23.9	> 10 - 11	11.7 - 23.3	> 11 - 12	11.4 - 22.8	> 12 - 13	11.2 - 22.2	> 13 - 14	11.0 - 21.6	> 14 - 15	10.7 - 21.0	> 15 - 16	10.5 - 20.5	> 16 - 20	10.1 - 19.4
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Serum Lithium	Not applicable	<p>a) 1.9 mmol/L for age ≤ 60 yrs</p> <p>b) 1.2 mmol/L for age &gt; 60 yrs</p>	<p>Therapeutic: 0.6 - 1.2 mmol/L</p> <p>Toxic: &gt; 2.0 mmol/L</p>
Serum Morning Cortisol <i>[The critical cortisol result will NOT trigger CRAS alarm. The result will be phoned by on-duty biochemist]</i>	50 nmol/L	-Not applicable	171 - 536 nmol/L
Serum Salicylate	Not applicable	2.20 mmol/L	<p>Therapeutic range:&lt; 2.20 mmol/L</p> <p>Toxic: &gt;2.50 mmol/L</p>
Serum Tricyclic Antidepressants (TCAs)	Not applicable	Positive	<p>a) 'Negative' result indicates that the sample does not contain TCA or TCA concentration is &lt; 300 µg/L.</p> <p>b) 'Positive' result may indicate TCA overdose.</p>