

Austin Health Pathology – High-Risk Critical and Significant Result Notifications

Alert thresholds apply to all **new and/or unexplained results only**, unless otherwise specified.

Level 1 CRITICAL RESULT (highlighted boxes): These results pose the highest clinical risk to the patient and require notification to occur within 1 hour.

Level 2 SIGNIFICANT RESULT: These results are high-risk and require notification for all inpatient/ED patients as soon as possible, and preferably within one hour. Notify outpatient results as soon as possible between 8am – 8pm; if outside of these hours, **attempt to notify** outpatient result if after hours contact details available, otherwise notify as soon as practical, i.e., the following morning when clinic opens.

PAEDIATRIC: defined as 16 years or younger.

NEONATE: defined as <28 days old

Biochemistry and Immunology Alert Thresholds

Analyte	Units	Low Threshold	High Threshold	Comments
ALT	IU/L	-	>1000	Critical result: notify immediately
		-	>500	If paediatric: notify all presentations
ANCA – MPO	IU/mL	-	≥6	
ANCA – PR3	IU/mL	-	≥5	
Arterial carbon dioxide tension (Blood gas, pCO ₂)	mmHg	-	>60	Critical result (if laboratory performed): notify immediately
Arterial oxygen tension (Blood gas, pO ₂)	mmHg	<55	-	Critical result (if laboratory performed): notify immediately
Arterial/Capillary pH (Blood gas)	mmHg	<7.30	>7.60	
AST	IU/L	-	>1000	Critical result: notify immediately

		-	>500	If paediatric: notify all presentations
Ammonia	umol/L	-	>100	If paediatric: notify all presentations
Bicarbonate	mmol/L	<15	-	If paediatric: notify all presentations

Analyte	Units	Low Threshold	High Threshold	Comments
Bilirubin, <i>total</i> (Paediatric only)	umol/L	-	>200	Significant only if 1 day old
		-	>250	Significant only if 2 days old
		-	>300	Significant only if 3 days old
		-	>350	Significant only if ≥ 4 days old (up until 16 years, inclusive)
Calcium, <i>corrected</i>	mmol/L	<1.81	>2.99	Critical result: notify immediately
Calcium, <i>total</i>	mmol/L	<1.51	>2.99	Critical result: notify immediately
Calcium, <i>ionised</i>	mmol/L	<0.70	-	Critical result: notify immediately
Carbamazepine	mg/L	-	>14	
Carboxy Hb (Blood gas)	%	-	>7	Critical result: notify immediately, regardless of where blood gas was performed
Ciclosporin (CYC)	ug/L	-	>2000	
Clozapine	ug/L	-	>1000	
Cortisol	nmol/L	<100	-	Significant result (unless patient is undergoing glucocorticoid treatment or Dexamethasone Suppression Test)

Creatine Kinase (CK)	U/L	-	≥ 2000	Critical result: notify immediately
Creatinine	umol/L	-	>150	Significant only if pregnant: notify first presentation
		-	>200	Significant only if paediatric: notify first presentation
		-	>250	Significant result (unless pregnant or paediatric, then refer above)
		-	DELTA increase >30% within 30 days	

Analyte	Units	Low Threshold	High Threshold	Comments
C-reactive protein (CRP)	mg/L	-	>10	Significant only if <3 months old: notify first presentation
		-	>200	
CSF glucose	nmol/L	≤ 1.5	-	Contact Microbiology scientist
CSF total protein	g/L	-	≥ 2.0	Contact Microbiology scientist
Digoxin	ug/L	-	>2.0	
Gentamicin	mg/L	-	>40	First, post-dose value
Glomerular basement membrane antibodies (antiGBM)	CU	-	≥20	

Glucose (Random, fasting, or 0-min GTT)	mmol/L	<2.5*	>25	Critical result: notify immediately *If an outpatient, notify <2.5 only if bicarbonate <18
		-	20-25	
		-	>15	Significant only if <1 month old
Iron	umol/L	-	>49	Significant only if paediatric: notify all presentations
Lactate	mmol/L	-	>4.0	Critical result: notify immediately
		-	3.0 – 4.0	
Lipase	U/L	-	>200	
Lipase (Roche ONLY)	U/L	-	>180	
Lithium	mmol/L	-	>1.20	

Analyte	Units	Low Threshold	High Threshold	Comments
Magnesium	mmol/L	<0.6	>1.9	If paediatric: notify all presentations
		<0.5	>1.9	If pregnant and not taking MgSO₄
		<0.5	>4.1	If pregnant and taking MgSO₄
		<0.5	>1.9	Significant result (unless paediatric or pregnant, then refer above)

Met Hb (Blood gas)	%	-	>2.5	Critical result: notify immediately, regardless of where blood gas was performed
Oestradiol	pmol/L	-	>3000	Significant only if Mercy patient
Paracetamol	mg/L	-	>15	Critical result: notify immediately
Phenytoin	mg/L	-	>20	Significant only if paediatric: notify all presentations
		-	>25	
Phosphate	mmol/L	<0.4	-	Critical result: notify immediately
		<0.8	>3.0	Significant only if <2 years old: notify first presentation
		<0.5	>3.0	
Potassium	mmol/L	<2.5*	>6.0*	Critical result: notify all immediately *If patient is <6 months old, then refer below
		<3.0	>6.7	Critical result if <6 months old
		<3.0	-	
Salicylate	mg/L	-	>345	
Sodium	mmol/L	<125*	>155	Critical result: notify immediately *If paediatric, then refer below

Analyte	Units	Low Threshold	High Threshold	Comments
Sodium	mmol/L	<130	>155	Critical result if paediatric: notify immediately

		<127	>150	
T3, <i>free</i>	pmol/L	-	>10	
T4, <i>free</i>	pmol/L	-	>40	
Tacrolimus	ug/L	-	>30	
Triglycerides	mmol/L	-	>10	
Troponin I (Outpatient)	ng/L	-	≥20	Critical result if male outpatient: notify immediately
		-	≥10	Critical result if female outpatient: notify immediately
Troponin I (Inpatient)	ng/L	-	>20	If male
		-	>10	If female
Troponin T (Roche ONLY)	ng/L	-	>50	
TSH	mIU/L	-	>5	If 3 weeks to 3 months old
		-	>20	If <3 weeks OR > 3 months old
		-	>40	Significant result (unless patient is pre-RAI scan)
Tryptase	ug/L	-	≥11	
Urea	mmol/L	-	>40	Significant result (unless inpatient or Dialysis Centre patient)

Urate	mmol/L	-	>0.34	Significant only if pregnant
Analyte	Units	Low Threshold	High Threshold	Comments
Urine TP:Cr ratio	mg/mmol	-	>50	Critical result only if pregnant: notify immediately
Urine TP:Cr excretion	g/d	-	>0.5	Critical result only if pregnant: notify immediately
Valproate	mg/L	-	>150	
Vancomycin	mg/L	-	>40	If pre-dose value
Vitamin B12	pmol/L	<80	-	Significant result (unless female <50, then see below)
		<100	-	Significant only if female <50 years old

Haemtology Alert Thresholds

Analyte	Units	Low Alert Threshold	High Alert Threshold	Other Alert Threshold	Comments
Haemoglobin	g/L	<70	-	-	CRITICAL: notify immediately
		<80	>190	-	First presentation only
		-	-	Fall of >30	
		<90	-	-	Paediatric patients only

		<90	–	–	Neonates Only (<28 days) CRITICAL: notify immediately
White Cell count	x 10 ⁹ /L	–	>50	–	
		–	>35	–	Neonates Only (<28 days) CRITICAL: notify immediately

Analyte	Units	Low Alert Threshold	High Alert Threshold	Other Alert Threshold	Comments
Neutrophil count	x 10 ⁹ /L	<0.7	–	–	CRITICAL: notify immediately
Platelet count	x 10 ⁹ /L	<20	–	–	CRITICAL: notify immediately
		<50	–	–	First presentation only for adults. ALL paediatric patients.
		<100	–	–	First presentation for paediatric patients only
		< 120	–	–	Neonates Only (<28 days) CRITICAL: notify immediately
APTT	Sec	–	>110	–	CRITICAL: notify immediately
		–	>45	–	First presentation only
PT	Sec	–	>19	–	
INR	Ratio	–	>4.0	–	CRITICAL: notify immediately

Fibrinogen	g/L	<0.8	–	–	First presentation only
		<1.5	–	–	If pregnant or postpartum, first presentation only
Fibrinogen (paediatric)	g/L	<1.0	–	–	First presentation only for paediatric patients
		<0.5	–	–	
Blood films	N/A	–	–	APML (Acute promyelocytic leukaemia)	CRITICAL: notify immediately
		–	–	Malaria	CRITICAL: notify immediately

Analyte	Units	Low Alert Threshold	High Alert Threshold	Other Alert Threshold	Comments
Blood films		–	–	Massive haemolysis: incl. co-existence of fragments and thrombocytopenia	CRITICAL: notify immediately
		–	–	New or relapsed acute leukemias	
HITS screen	N/A	–	–	Positive	
SVDK	N/A	–	–	All positive snake venom detection result	
CSF Leukocyte	x 10 ⁶ /L	–	>20	–	Notify microbiology scientist

Blood Bank	N/A	–	–	A suspected issuing of incompatible blood product to a patient with the potential to lead to an acute haemolytic reaction.	CRITICAL: notify immediately
		–	–	Discrepancy in blood grouping from previous result	
		–	–	Any significant delay in provision of blood products	Incl. red cell incompatibility due to atypical antibodies
		–	–	Presence of an atypical antibody that may cause HDN in a pregnant woman	Unexpected result only
		–	–	Positive DAT in a baby, or positive DAT in an adult where result is unexpected	
		–	–	Kleihauer test >3mL FMH	
Analyte	Units	Low Alert Threshold	High Alert Threshold	Other Alert Threshold	Comments
		–	–	Antenatal antibody titre >1 value different from previous	

Microbiology Alert Thresholds

Sterile site isolation:

Microscopic findings suggestive of infection and/or isolation of a pathogen from key sterile sites:

- Blood
- Fluids: CSF, peritoneal, ascitic, pericardial and pleural aspiration cultures (not drainage fluid), joint fluid

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- Cardiac tissue/valve samples and prosthetic endovascular devices (e.g., vascular graft or pacemaker)
- Brain biopsy

Detection of a highly pathogenic organism from clinical samples (culture or antigen)