

Critical Results Guide

Category	Reporting
Category A	Results require communication within 2 hours. This classification indicates potential immediate danger to the patient, or a potential life-threatening illness when urgent intervention is required.
Category B	Results require Communication within 24 hours , and preferably on the same working day.
Category C	Results could have an immediate impact on a patient's management (either treatment or investigation) however action is likely to be taken on the next working day. Communication on the next working day is satisfactory.

Microbiology and Virology

Analyte	Result	Category
Faecal Microbiological Analysis	Other stool bacterial pathogen studies Positive on polymerase chain reaction or on culture for VTEC/STEC, Campylobacter, Escherichia coli, Salmonella, Shigella, Norovirus, Clostridioides difficile.	B
All Samples Excluding MRSA, VRE, ESBL, AMPc Screens	Any unexpected culture result (unusual pathogen, MDRO except ESBL, AMPc) where patient likely to be on inappropriate empiric therapy	B
Surveillance Screen - CPE / CPO	Presumptive CPE/CPO Isolated (first only)	B
Faecal Microbiological Analysis	Cryptosporidium	C
HBsAg	Detected - new detection only , once confirmed at reference laboratory	C
Hepatitis B core IgM	Positive, once confirmed at reference laboratory	C
HCV Ab	Detected - new detection only , once confirmed at reference laboratory	C
Human immunodeficiency virus HIV 1 or 2	Detected - new detection only , once confirmed at reference laboratory	C
Treponema Pallidum	Positive specific serology- new detection in pregnancy only , once confirmed at reference laboratory	C
Group A Streptococcus	Positive by WGS on sterile sites	C

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Haematology

Analyte	Critical Low	Critical High	Category
Blood Film Morphology	Blasts / Significant schistocytes		A
Haemoglobin	< 6.0 g/dL		A
	6.0 – 7.9 g/dL	≥ 20.0 g/dL	B
Platelet Count	≤ 30 x 10 ⁹ /L	≥ 1000 x 10 ⁹ /L	A
	31 – 50 x 10 ⁹ /L	≥ 800 x 10 ⁹ /L	B
Neutrophil Count	≤ 0.5 x 10 ⁹ /L		A
INR		≥ 5.0	A
White Blood Cell Count		≥ 30 x 10 ⁹ /L	B
Eosinophil count		≥ 5.0 x 10 ⁹ /L	B
PT		> 40 seconds	C
APTT		> 70 seconds	C
Fibrinogen	< 1.0 g/L		C
D-Dimer		> 500 ng/mL	C

Biochemistry

Analyte	Critical Low	Critical High	Category
Active B12	< 25 pmol/L		B
Calcium	≤ 1.7 mmol/L	> 3.5 mmol/L	A
		3.0 – 3.5 mmol/L	B
ALT		≥ 510 U/L (on first occurrence)	B
Amylase		≥ 500 U/L	B
AST		≥ 510 U/L (on first occurrence)	B
Cortisol¹	≤ 100 nmol/L		B
Creatine Kinase		≥ 5000 U/L	B
Creatine Kinase (<16 years)		≥ 2000 U/L	B
Creatinine		≥ 354 µmol/L (on first occurrence)	B
Creatinine (<16 years)		≥ 200 µmol/L (on first occurrence)	B
CRP		≥ 300 mg/L	B
eGFR	≤ 15 mL/min (on first occurrence)		A
FT4		≥ 50 pmol/L	C
Glucose	≤ 2.5 mmol/L	≥ 25.0 mmol/L	B
Glucose (<16 years)	≤ 2.5 mmol/L	≥ 15.0 mmol/L	B
Lithium		> 1.5 mmol/L	A
Magnesium	≤ 0.4 mmol/L		B
Phosphorus³	≤ 0.45 mmol/L		B
Potassium²	≤ 2.3 mmol/L	≥ 6.5 mmol/L	A
Prolactin		≥ 5000 mIU/L	C
Sodium	≤ 125 mmol/L (on first occurrence)	≥ 155 mmol/L (on first occurrence)	A
Sodium (<16 years)	≤ 130 mmol/L (on first occurrence)	≥ 155 mmol/L (on first occurrence)	A
Thyroid Stimulating Hormone (TSH)		> 75 mIU/L	C
Triglycerides		≥ 20 mmol/L	B
Urea		≥ 30 mmol/L (on first occurrence)	B
Urea (<16 years)		≥ 10 mmol/L (on first occurrence)	B

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Referral Tests – Microbiology + Virology

Analyte	Result	Category
Varicella Zoster IgG	Negative (if patient is pregnant or less than one month old)	A
Faecal Microbiological Analysis	Other stool bacterial pathogen studies Positive on polymerase chain reaction or on culture for VTEC/STEC, Campylobacter, Escherichia coli, Salmonella, Shigella, Norovirus, Clostridioides difficile.	B
Faecal Microbiological Analysis	Cryptosporidium	C
All Samples Excluding ESBL, AMPc Screens	Any unexpected culture result (unusual pathogen, MDRO except ESBL, AMPc) where patient likely to be on inappropriate empiric therapy	B
Sterile fluid or tissue studies	Positive for Gram stain or if raised white cell count (if requested as urgent on Patient Request Form)	C
Group A Streptococcus	Positive on culture	C
Hepatitis A virus IgM	Positive	C
Hepatitis E IgM	Positive	C
Mycobacterium tuberculosis	Positive on microscopy, on polymerase chain reaction or on culture	C

Referral Tests - Haematology

Analyte	Result	Category
Sickle Cell Test	Positive	C

Referral Tests - Biochemistry

Analyte	Critical Low	Critical High	Category
Carbamazepine⁴		≥ 15 mg/L	C
Digoxin⁵		≥ 2.0 µg/L	C
Phenobarbitone⁴		> 45 mg/L	C
Phenytoin⁴		≥ 25 mg/L	C
Prolactin (Macro)		≥ 5000 miu/L	C
Theophylline⁴		> 20mg/L	C
Valproate		≥ 100 mg/L	C
Glomerular Basement Membrane Abs		> 10 iu/ml	C
Paraprotein	Any IgE/IgD	IgG > 15 g/L	C
		IgA > 10g/L	
		IgM > 10 g/L	
Bile acids⁶		≥ 20 µmol/l	C
Myeloperoxidase antibodies		> 5 iu/ml	C
Proteinase 3 antibodies		> 3 iu/ml	C

KEY:

- ¹ Before calling out Critical Cortisol result, check the PRF and only call out if patient is not part of dynamic function test e.g. Dexamethasone suppression test.
- ² Only call out critical high Potassium results if the sample is received and centrifuged within 4 hours and is not haemolysed.
- ³ For phosphorus results ≤ 0.3 mmol/L, attempt to contact the GP as soon as possible.
- ⁴ Therapeutic range based on pre-dose sampling.
- ⁵ Sample at least 6 hours post-dose.
- ⁶ Ante-natal indications only.

Note 1:

The critical result thresholds outlined in this guide are based on consultant clinical recommendations and are aligned to the principles of the HSE document HSE Advice Note LS/0001/1.0/2025 Communication of Laboratory Results Likely to Require Urgent Action (EMED623) and for referral testing to the external referral laboratory critical alert guides, to ensure timely and appropriate clinical response.

Note 2:

Biochemistry referral results designated as critical by the referral laboratory must be communicated and managed under **Category C** critical call procedures (EMP013).

Microbiology referral results designated as critical by the referral laboratory and must be communicated and managed according to designated critical category above as per critical call procedures (EMP013).