

Division of Laboratory Medicine

Biochemistry

Acute Kidney Injury Score; AKI

Pseudonyms: None

The score is calculated using serum creatinine compared to a previous value within the last 12 months and is an alert to highlight an acute decline in renal function which requires urgent investigation.

General information

Collection container:

Blood

Adults – serum (with gel separator, 4.9mL Starstedt brown top).

Paediatrics – plasma (lithium heparin orange top tube).

Type and volume of sample:

The tubes should be thoroughly mixed before transport to the lab. The test is always included in a U/E request.

Laboratory information

Method principle: Serum creatinine is measured using an automated enzymatic colourimetric assay. The reaction is a 4 step process, relying on the specificity of creatinase in the first step. A colour is produced proportional to the amount of creatinine present in the sample.

Biological reference ranges:

Null: Insufficient data to determine AKI Stage – No previous result available	
Serum creatinine (SCr) criteria	Urine output criteria
Stage 1. Increase ≥ 26 $\mu\text{mol/L}$ within 48hrs or increase ≥ 1.5 to $1.9 \times$ reference SCr	<0.5 mL/kg/hr for > 6 consecutive hrs
Stage 2. Increase ≥ 2 to $2.9 \times$ reference SCr	<0.5 mL/kg/ hr for >12 hrs
Stage 3. Increase $\geq 3 \times$ reference SCr or 1.5 fold increase to >354 $\mu\text{mol/L}$	<0.3 mL/kg/hr for >24 hrs or anuria >12 h.

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Turnaround times:

Results available within 1 hour (urgent) or 4 hours (routine). Any AKI score of 3 will be telephoned to the requesting location unless HDU/ITU or a renal dialysis ward. Please ensure accurate information is supplied.

Clinical information

Factors known to significantly affect the results:

Haemolysis, lipaemia and icterus (>400umol/L bilirubin) will cause falsely elevated creatinine results, potentially leading to an overestimate of the AKI score. Care should be taken when bleeding the patient to avoid haemolysis and caution interpreting results in patients with very high triglycerides or grossly abnormal liver function tests is required.

Appropriate action in response to e-Alerts is critically dependent on Technology and human-related factors.

Further information:

The Trust guidelines are available on the intranet:

<http://staffnet.cmft.nhs.uk/resources/acute%20kidney%20injury%20guidelines.pdf>

There is also a NICE guideline and a “Think Kidneys” website with further information:

<https://www.nice.org.uk/guidance/cg169>

<https://www.thinkkidneys.nhs.uk/aki/>

(Last updated November 2019)