

20<sup>th</sup> January 2025

Dear Colleague,

**Laboratory update: Move to CKD-EPI (2009) equation for eGFR in adults**

We are writing to inform you that on **Thursday 30<sup>th</sup> January 2025**, we will be updating the equation used to estimate glomerular filtration rate (eGFR) in adults. eGFR is a key indicator of renal function, used to classify chronic kidney disease (CKD), and is calculated from a person's age, sex and creatinine concentration.

We are moving to the CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) 2009 equation, as recommended by the 2021 NICE CKD guidance (NG203). The CKD-EPI equation better reflects renal function especially in younger people without clinical renal disease, as it produces less biased estimates of kidney function at higher GFRs - and therefore reports fewer false positive results. We have been reporting eGFR using the 4MDRD (Modification of Diet in Renal Disease study) equation for >10 years. The MDRD equation has limitations in that it significantly underestimates GFR in people with GFR >60 mL/min/1.73m<sup>2</sup>.

For the majority of patients, reported eGFR using the CKD-EPI equation will be equivalent to historical 4MDRD results, though the change is expected to re-classify the CKD stage for some. It is important to review the measured creatinine result in conjunction with the new eGFR: if the creatinine concentration has not changed significantly, then renal function will not usually have altered and the eGFR change can be attributed to the new estimation equation. Similarly, a significant change in creatinine concentration may be masked by a seemingly stable eGFR. Note however that the upcoming change will not affect the Acute Kidney Injury (AKI) Warning algorithm that is in place at HCA Laboratories, which is designed to highlight potential cases of AKI, ensuring patient safety.

**Key messages:**

- As with the 4MDRD equation, CKD-EPI eGFR assumes average body habitus for patients of that age and gender.
  - Interpret eGFR with caution in adults with extremes of muscle mass/body habitus, e.g. in bodybuilders, people with cachexia, people who have had an amputation or people with muscle wasting disorders. Reduced muscle mass will lead to overestimation of the GFR and increased muscle mass to underestimation of the GFR.
- Interpret eGFR values of 60 mL/min/1.73m<sup>2</sup> or more with caution, bearing in mind that estimates of GFR become less accurate as the true GFR increases.
- If eGFR is greater than 90 mL/min/1.73 m<sup>2</sup>, use an increase in serum creatinine concentration of more than 20% to infer a significant reduction in kidney function.
- NICE recommends that adults refrain from eating any meat in the 12 hours before having bloods for creatinine and eGFR. Note that if someone is taking creatine supplements, this will result in a falsely raised creatinine result and therefore a falsely low eGFR.
- Confirm an eGFR result of <60 mL/min/1.73 m<sup>2</sup> in an adult not previously tested by repeating the test within 2 weeks.
- Allow for biological and analytical variability of serum creatinine (±5%) when interpreting changes in eGFR.
- Urine ACR is required for classification and risk stratification of CKD.

**Useful links:**

- Lab Tests Online: [eGFR - Calc. Creatinine Clearance \(labtestsonline.org.uk\)](http://labtestsonline.org.uk)
- NICE NG203 Chronic kidney disease: [Chronic kidney disease: assessment and management](#)
- UK Kidney Association: [The UK eCKD Guide - UK Kidney Association](#)

We are sorry for the extremely short notice informing you of this change. We have had to bring forward the implementation date due to the upcoming introduction of our new EHR programme, Meditech Expanse.

Please do not hesitate to contact us if you have any questions regarding this change, or any aspect of the laboratory service.

Kind regards,



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