



## Memorandum Core #183

To: UNC Health System Physicians, Housestaff, Clinical Nurse Coordinators, Department Heads, and Supervisors

From:  Nichole Korpi-Steiner, PhD,  
Co-Director, Clinical Chemistry Laboratory

 Herbert C. Whinna, MD, Ph.D.  
Medical Director, McLendon Clinical Laboratories

 Keisha Gibson, MD, MPH  
Chief, Pediatric Nephrology

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**Subject: Implementation of CKD-EPI 2021 equation to calculate eGFR without race coefficient**

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Effective May 22<sup>nd</sup> 2022, UNC Health is changing the calculation used to estimate glomerular filtration rate using creatinine (eGFR<sub>cr</sub>) to the new CKD-EPI 2021 equation that does not include a race coefficient. This new equation is recommended by the National Kidney Foundation and the American Society of Nephrology Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease [1]. This change will not impact EPIC ordering or order sets. Reported patient eGFR results using this new equation will display in a new result field in EPIC.

When evaluating a patient's GFR, it is important to remember that eGFR is an estimate of the patient's GFR. Approximately 85% of eGFR<sub>cr</sub> values for adult patients are within 30% of measured GFR [2]. ***The new CKD-EPI 2021 eGFR<sub>cr</sub> equation has similar overall performance characteristics to the previous equations without potential consequences that disproportionately affect any one group of individuals.*** For most patients the eGFR<sub>cr</sub> result will be similar, however, for some patients the values may differ by more than 10% particularly at lower serum creatinine concentrations (higher eGFR<sub>cr</sub> values) and for younger adult ages. *Miller et al.* describe expected magnitude of differences in eGFR<sub>cr</sub> calculated values for representative creatinine concentrations and ages [see Reference 3, Table 2].

The eGFR<sub>cr</sub> values need to be interpreted based on clinical context. Clinical practice recommendations suggest that cystatin C may be a more reliable marker of renal function than creatinine for select adult patients with eGFR<sub>cr</sub> near medical decision points and in situations in which non-GFR factors may have a large effect on serum creatinine, including but not limited to: alterations in creatinine production (muscle wasting diseases, amputees, body builders, vegan diet), drugs that affect tubular secretion of creatinine (cimetidine, cobicistat, dolutegravir, fenofibrate, ritonavir, trimethoprim and others), and conditions with extra-renal elimination of creatinine (gastrointestinal and “third-space” losses) [3, 4]. Providers should consider non-GFR factors affecting cystatin C, including smoking, obesity, inflammation and disorders of thyroid or adrenal hormones. Cystatin C (LAB11134) testing is currently available as a send out test.

Please contact Dr. Keisha Gibson ([kgibson@med.unc.edu](mailto:kgibson@med.unc.edu)) for any clinical questions regarding this change on assessment of kidney function.

Please contact Dr. Nichole Korpi-Steiner ([Nichole.korpi-steiner@unchealth.unc.edu](mailto:Nichole.korpi-steiner@unchealth.unc.edu)) for any technical questions.

### **References**

1. Delgado C, Baweja M, Crews DC, et al. A Unifying Approach for GFR Estimation: Recommendations of the NKF-ASN Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease. *Am J Kidney Dis*. 2021 DOI: 10.1053/j.ajkd.2021.08.003
2. Inker LA, Eneanya ND, MCorsh J, et al. New Creatinine- and Cystatin C–Based Equations to Estimate GFR without Race. *New England J Med*. 2021: DOI: 10.1056/NEJMoa2102953
3. Miller WG, Kaufman HW, Levey, AS, et al. National Kidney Foundation Laboratory Engagement Working Group Recommendations for Implementing the CKD-EPI 2021 Race-free Equations for Estimated Glomerular Filtration Rate: Practical Guidance for Clinical Laboratories. *Clinical Chemistry*. 2021: <https://doi.org/10.1093/clinchem/hvab278>
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