

Legacy Laboratory Services

Legacy Lab Alert

June 2021

An Important Update from Legacy Laboratory Services

Important Changes to Estimated GFR

Effective June 30, 2021, Legacy Laboratory Services (LLS) will transition from the IDMS-traceable Modified Diet and Renal Disease Study (IDMS-MDRD) equation¹ to the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation² to calculate the estimated Glomerular Filtration Rate (eGFR). The CKD-EPI equation is recommended by the National Kidney Foundation (NKF) and the Kidney Disease Improving Global Outcomes (KDIGO).^{3,4} The equation is based on serum creatinine, age, and sex and is normalized to the 1.73 m² body surface area. **As a part of this change, we will exclude race as a variable in this equation.** Self-reported race is a subjective variable and conclusive evidence has not been found to support biological differences between racial groups.⁵ As a result of both of these changes, the eGFR results will decrease on average 0.2 mL/min/1.73m² based on Legacy Health's patient population (N = 81,286 eGFR results). However, the actual difference is based on the individual and can range from a decrease of 13.8 to an increase of 7.8 mL/min/1.73m².

The eGFR provides an estimate of how well your kidneys filter blood. Traditionally, both the CKD-EPI and IDMS-MDRD equations have used race in addition to creatinine, age, and sex to calculate the eGFR. Medical reports usually provide both an African American (Black) and non-African American (non-Black) result. In 2017, Beth Israel (Boston, MA) had dropped race as a variable to calculate eGFR.⁶ In 2018, a conversation was initiated at the University of Washington (UW, Seattle, WA) to question the strength of evidence for using race in these calculations.⁷ UW switched to the CKD-EPI equation and stopped using race as a variable on June 1, 2020. In July 2020, the NKF and the American Society of Nephrology (ASN) created a task force to examine the inclusion of race in the eGFR and evaluate the implications for removing this variable. The Task Force published an interim report in 2021 that acknowledges race should not be included in the eGFR equations.⁸ However, guidelines on how to proceed will not be available until the final report. Health Systems are researching and moving forward on their own path. In the last year, several other health systems have followed in Beth Israel's and UW's footsteps.^{9,10,11}

It's important to note that the equation change to CKD-EPI does not include the eGFR reported using the Nova Point of Care (POC) instrument (**Mnemonic: POC CR**), which will continue to use the original MDRD equation (non-traceable to IDMS).¹² Instead of the information system, the eGFR is calculated by the Nova instrument to provide quick information to healthcare providers. CKD-EPI or IDMS-MDRD equations are not available from the manufacturer, Nova, at this time. Even though we are not changing the equation, we will still stop using race as a variable and only report one result for all patients. The eGFR for POC will decrease on average 5.7 mL/min/1.73m² for the African American population with a range of 0.4 to 11.2 mL/min/1.73m² decrease.

Table 1: Differences Between eGFR Reporting - Changes are highlighted in yellow.

Parameter	Current (Prior to 6/30/21)	New (Starts 6/30/21)
Test Name	LAB: Est GFR not Afr-Am & Est GFR if Afr-Am POC: WB EstGFR	LAB: eGFR CKD-EPI POC: WB EstGFR
Orderables Including eGFR	LAB: BASICGFR, COMPGFR, RENALGFR, & CR GFR POC: POC CR	No change
Equation Used	LAB: IDMS-MDRD POC: MDRD	LAB: CKD-EPI POC: MDRD
Variables included	Serum creatinine, sex, age, and race	Serum creatinine, sex, and age (race excluded)
Reference Range	>59 mL/min/1.73 m ²	No change
Reporting Range	0-60 mL/min/1.73 m ² : Reported as an integer >60 mL/min/1.73 m ² : Reported as >60.	No change

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Parameter	Current (Prior to 6/30/21)	New (Starts 6/30/21)
Other	eGFR will not be reported on patients less than 18 years.	No Change
	eGFR was reported on patients greater than 70 years with a disclaimer.	eGFR will still be reported on patients greater than 70 years, but the disclaimer is no longer required.
	eGFR reported on patients when the sex is unknown will be reported using the male equation & a comment added.	No Change
Interpretive Statement	<p>GFR Reference Range (mL/min/1.73m²)</p> <p>Stage of Chronic Kidney Disease</p> <p>>=60 Normal or subacute (None, 1, or 2)</p> <p>30-59 Moderate CKD (3)</p> <p>15-29 Severe CKD (4)</p> <p>0-14 Kidney Failure (5)</p> <p>Note: The estimated GFR has not been validated in the following patient populations:</p> <ul style="list-style-type: none"> • Normal renal function • Non-Caucasian, non-African American • <18 or >70 years old • GFR values >60 • Pregnancy <p>This calculation is not valid in patients with rapidly changing renal function</p>	<p>GFR Reference Range (mL/min/1.73m²)</p> <p>Stage of Chronic Kidney Disease</p> <p>>=60 Normal or subacute (None, 1, or 2)</p> <p>30-59 Moderate CKD (3)</p> <p>15-29 Severe CKD (4)</p> <p>0-14 Kidney Failure (5)</p> <p>The estimated (eGFR) is calculated by the CKD-EPI equation based on serum creatinine, age, and sex. It is normalized to 1.73 m² body surface area. Race is excluded in the eGFR calculation, because self-reported race is a subjective variable and no conclusive evidence supports biological differences between racial groups (JAMA 2019 Jul 9;322). This calculation is inaccurate in patients with rapidly changing renal function.</p> <p>NEW eGFR EQUATION: Effective June 30, 2021, the eGFR equation has been changed to the CKD-EPI equation from the IDMS-MDRD equation. In addition, we will no longer be using a race factor. For more information, please refer to the Lab Alert on the Legacy Laboratory Services website (https://www.testmenu.com/legacylab).</p>

References:

- 1.) Levey AS, Coresh J, Greene T, Stevens LA, Zhang YL, Hendriksen S, et al. Using standardized serum creatinine values in the modification of diet in renal disease study equation for estimating glomerular filtration rate. *Ann Intern Med* 2006;145(4):247–54.
- 2.) Levey AS, Stevens LA, Schmid CH, et.al. A New Equation to Estimate Glomerular Filtration Rate, *Ann Intern Med*, 2009, 150(9): 604-612.
- 3.) National Kidney Foundation website, reviewed 5/24/21, https://www.kidney.org/professionals/kdoqi/gfr_calculator
- 4.) KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease, *Kidney Inter*, 2013, 3(1): 1–150.
- 5.) Eneanya ND, Yang W, Reese PP, Reconsidering the consequences of using race to estimate kidney function, *JAMA*, 2019, 322: 113-114.
- 6.) Balch, Bridget, [Confronting race in diagnosis: Medical students call for reexamining how kidney function is estimated | AAMC](#), Beth Israel Deaconess Medical Center (Boston, MA), September 24, 2020.
- 7.) [UW Medicine to exclude race from calculation of eGFR \(measure of kidney function\) | Department of Medicine | University of Washington](#) (Seattle, WA), News & Events, May 29, 2020.
- 8.) Delgado C, Baweja M, Burrows NR, et.al. Reassessing the Inclusion of Race in Diagnosing Kidney Disease: An Interim Report from the NKF-ASN Task Force, *JASN*, 2021, 32: 1-13.
- 9.) [Group's efforts lead to removal of race as a variable in common test of kidney function | VUMC Reporter | Vanderbilt University](#) (Nashville, TN), July 13, 2020.
- 10.) Study Reveals the Influence of Race Correction in Kidney Disease Care, [BWH Press Release - Brigham and Women's Hospital \(brighamandwomens.org\)](#) (Boston, MA), Press Releases, October 15, 2020.
- 11.) [UC Davis drops race-based reference ranges from a standard kidney test](#), UC Davis Health (Davis, CA), Newsroom, May 18, 2021.
- 12.) Levey AS, Bosch JP, Breyer Lewis, et.al, A more accurate Method to Estimate Glomerular Filtration Rate from Serum Creatinine: A New Prediction Equation, *Ann Int Med*, 1999, 130: 461-470.

For additional information, please contact your account representative, client services or consult our website:
 Legacy Laboratory Client Services: 503-413-1234, 877-270-5566, www.legacyhealth.org/labservices