



A New Race-Free Equation for estimating Glomerular Filtration Rate (GFR)

What You Need to Know

This document is intended for use by health care providers. Recommendations are based on literature and consultations with experts in nephrology and primary care.

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Why is the eGFR equation changing?

- Race is a social construct and its inclusion in clinical algorithms has led to health disparities. The practice of making adjustments based on race is harmful and needs to be stopped.
- Creatinine-based estimated glomerular filtration rate (eGFR) is commonly used to diagnose and monitor chronic kidney disease (CKD).
- A new equation (CKD-EPI 2021) for measuring eGFR is being rolled out across Ontario as of April 2024. This replaces the CKD-EPI 2009 equation which included a race adjustment for Black people. The CKD-EPI 2021 equation uses creatinine to estimate kidney function and does not include a race adjustment. [1]
- The CKD-EPI 2021 equation has been endorsed by the Canadian Society of Nephrology in Canada as well as the National Kidney Foundation and American Society of Nephrology [2] in the United States [3].
- Implementing the race-free CKD-EPI 2021 eGFR equation is an important step in achieving equitable care for Black people in Ontario.



How does this affect my patients?

- When compared to the CKD-EPI 2009 equation with race adjustment, the CKD-EPI 2021 equation will produce a lower estimate of GFR for Black people, which is expected to lead to more timely access to kidney care services for those with high-risk CKD.
- For non-Black individuals, the CKD-EPI 2021 equation will produce a slightly higher estimate of GFR than the old one. People who monitor their own eGFR results may be confused by this change in values. The difference is not large and for those people already receiving care for CKD from a nephrologist or in a Multi-Care Kidney Clinic, access to that care will not be affected. It will also not affect the position of patients who are currently on the transplant waiting list.
- At a population level, the median change for those with an eGFR < 15 is +1.0 mL/min/1.73², for those with an eGFR between 15 and < 30, the median change is +2.0 mL/min/1.73², and for those with an eGFR between 30 and < 60, the median change is +3.6 mL/min/1.73². In general, these modest changes are unlikely to have major clinical significance.
- As was the case with the CKD-EPI 2009 equation, the CKD-EPI 2021 equation is only an estimate of kidney function. It should be noted that inaccuracies in estimation may also arise amongst individuals with relatively high or low muscle mass and older people. Moving to the CKD-EPI 2021 equation will produce different GFR estimations for a given serum creatinine and these do not reflect actual changes to kidney function. Treatment decisions related to CKD care and diagnosis should focus on multiple measurements including albuminuria, serial changes in eGFR and of course, on clinical judgment.



Recommended practices for identifying patients with CKD

- With the CKD-EPI 2021 equation there is no race multiplier. This is a change from the previous practice under CKD-EPI 2009 equation whereby physicians were instructed to multiply results for Black people by 1.159.
- People with CKD (eGFR <60 mL/min/1.73m²) and/or diabetes should be monitored annually using creatinine-based eGFR and albumin to creatinine ratio (ACR) tests.
- People who are First Nations, Inuit, Metis or Urban Indigenous should be monitored annually using creatinine-based eGFR and ACR tests as there is clinical evidence that shows higher prevalence of CKD in these populations.
- People with hypertension, cardiovascular disease and/or a first degree relative with CKD should be monitored using creatinine-based eGFR and ACR tests on a regular basis but not necessarily annually.
- In cases where eGFR results are surprising and where there may be very high or low muscle mass, physicians may want to consider using cystatin C to calculate eGFR. Cystatin C is available in some community laboratories for a fee. It is also available in some hospital laboratories. An eGFR equation using cystatin C can be found [here](#) but is usually reported by labs as part of test results. A cystatin C test should be considered in conjunction with creatinine and is recommended in cases where a creatinine based eGFR may be unreliable.
- Ontario Health's (Ontario Renal Network) [KidneyWise Toolkit](#) continues to recommend referral to nephrology for people with an eGFR <30 mL/min/1.73m², Albumin to Creatinine Ratio (ACR) >60 mg/mmol or a 5-year Kidney Failure Risk Equation (KFRE⁵) ≥5%. Please see the KidneyWise toolkit for further information on identification and management of people with CKD.
- Ontario Health has produced a document with key messages for patients in [English](#) and [French](#). Physicians can use this document to facilitate discussions with patients on the new eGFR equation and what it means to their care.

References

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- [3] B. L. Auguste, A. C. Nadeau-Fredette, R. S. Parekh, P. S. Poyah, J. Perl, M. M. Sood and N. Tangri, "A Canadian Commentary on the NKF-ASN Task Force Recommendations on Reassessing the Inclusion of Race in Diagnosing Kidney Disease," *Kidney Medicine*, vol. 6, no. 1, 15 November 2023.