The National Clinical Programme for Pathology

EGFR PRACTICE ADVICE NOTE

Recommendations for Calculation and Reporting of eGFR in the Laboratory

Issued in conjunction with the National Renal Office

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CDI Clinical Practice Guidance Document Cover Sheet

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1 Advice

The National Clinical Programme for Pathology in conjunction with the National Renal Office offers the following advice:

1.1 Advice for Laboratories

1. Do not use correction of eGFR based on race or ethnicity
2. Do not included comments on reports advising users to apply corrections to eGFR based on race or ethnicity
3. The CKD-EPI (2009) method for calculation of eGFR (which does not include correction based on race or ethnicity) is the preferred method for calculation of eGFR.
4. Reports of eGFR should, wherever possible, include details of the calculation algorithm used including the year of publication of the algorithm.
5. If, for any reason, it is not practical to accommodate details of the calculation algorithm used on the individual report the information should be readily available to users in an alternative manner (for example in the user's guide)
6. Enzymatic methods for measuring creatinine are preferred to the Jaffe reaction method

1.2 Advice for Laboratory Users

7. Do not apply corrections to eGFR based on race or ethnicity
8. eGFR is a calculated estimate of kidney function. There are several limitations to its application and results must be interpreted in conjunction with history and clinical findings
9. eGFR values can differ between laboratories. Creatinine measurements can vary significantly between laboratories depending on the methods used to measure it.
10. Take account of the eGFR calculation method used in each case when using eGFR to make clinical decisions. There can be considerable variation in individual readings, it is therefore advisable to monitor the rate of change and to repeat measurements if an individual reading shows a significant change.
11. eGFR values near 'normal' should not be interpreted in isolation. The existing equations used for estimating eGFR may underestimate normal or near-normal function around the 60 ml/min/1.73m2 CKD "cut-off" level.
12. Do not rely on eGFR in patients with rapidly changing renal function. The calculation is not valid in patients with acute kidney injury or in patients receiving dialysis
13. Do not rely on eGFR for drug dosing and/or in people at extremes of body type e.g. patients with limb amputations, severely malnourished, very muscular, or pregnant patients.
14. Calculated eGFR is not valid for individuals under the age of 18 or for pregnant women.

2 Background

Glomerular Filtration Rate (GFR) is used as an index of kidney function. GFR, along with albuminuria, can be used to assess the extent of chronic kidney disease in an individual.

GFR varies according to age, sex, and body size; in young adults it is approximately 120 ml/min/1.73 m^2 and declines with age. A decrease may indicate development of renal disease.

A common approach to evaluate kidney function is to estimate GFR with equations that use serum creatinine levels and some or all of the following variables: gender, age, weight, and race.

Currently, in Ireland, the most commonly used equations for estimating GFR are based on The Modification of Diet in Renal Disease Study (MDRD) and Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) both of which include a factor for adjustment based on ethnicity.

The CKD-EPI (2009) equation was widely recommended as the calculation of choice for clinical decision making and was endorsed by the NRO and NCPP in 2018.

More recently, recommendations from the UK and US advocate the removal of adjustment factors based on ethnicity when calculating eGFR, noting that use of these adjustments may overestimate kidney function in certain patients and therefore adversely affect their access to kidney transplantation and dialysis treatment.

The CKD EPI equation was updated in 2021 to remove the correction factor for ethnicity, however this calculation has not yet been validated in a European population.

In their 2022 editorial in clinical chemistry and laboratory medicine (EFLM, 2023) the European Federation of Clinical Chemistry and Laboratory Medicine recommends retention of the 2009 version of the CKD-EPI equation without the correction for ethnicity.

3 References

EFLM. (2023). The new, race-free, Chronic Kidney Disease Epidemiology Consortium (CKD-EPI) equation to estimate glomerular filtration rate: is it applicable in Europe? A position statement by the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM). *Clin Chem Lab Med*, 61(1): 44–47. doi:10.1515/cclm-2022-0928

Levey, A. S. (2009, May 5). A New Equation to Estimate Glomerular Filtration Rate. *Ann Intern Med*, 150(9): 604–612.

Mousapour, P. (2020, October 18). Comparison of the Modification of Diet in Renal Disease Study and Chronic Kidney Disease Epidemiology Collaboration Equations for Detection of Cardiovascular Risk: Tehran Lipid and Glucose Study. *Int J Endocrinol Metab*. doi:10.5812/ijem.10197

NICE. (2021). *Chronic kidney disease: [A] Evidence reviews for the diagnostic accuracy of eGFR calculations in adults, children, and young people from black, Asian and other minority ethnic groups with CKD.* NICE.

NICE. (2021). *Chronic kidney disease: assessment and management.* NICE. Retrieved from www.nice.org.uk/guidance/ng203

Shine, B. (2017). The case for changing from using MDRD to CKD-EPI for estimating glomerular filtration rate (eGFR). Oxford. Retrieved from https://www.ouh.nhs.uk/biochemistry/documents/ckd-epi.pdf

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