

Creatinine calibration in NHANES: is a revised MDRD study formula needed?

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To the Editor:

Selvin et al recently published a study in *AJKD* concerning the calibration of serum creatinine in the National Health and Nutrition Examination Survey (NHANES).¹ Calibration of creatinine is important for precise results when using the Modification of Diet in Renal Disease (MDRD) Study equation, especially when calculations involve low creatinine values.¹⁻³ A re-expressed version of this equation, generated with an isotope dilution mass spectrometry-traceable method (Roche Diagnostic, Indianapolis, IN), has been proposed, in which the factor 186 is replaced by 175 after calibration.⁴ However, the way this new factor has been obtained seems questionable.⁵ The authors have modified their equation after having recalibrated their Jaffé creatinine (Beckman CX3, Beckman Coulter, Inc, Fullerton, CA) to the enzymatic method on 40 reference sera with creatinine values between 0.5 and 5 mg/dL (44-442 $\mu\text{mol/L}$; see Fig 3 of⁵). From our point of view, the range of creatinine used for the calibration appears to be too large because the calibration effect on the MDRD Study results is only relevant in the lower values of creatinine (0.5 to 2 mg/dL [44-177 $\mu\text{mol/L}$]).³ Within this specific range (Fig 3 of⁵), the slope is closer to 1 (and not to 0.906, as is the case if higher values are included).⁵ Accordingly, Selvin et al's data clearly showed a slope of 1 between creatinine values measured with the enzymatic and the Beckman Jaffé methods used in the 2001-2002 and 2003-2004 NHANES. In Selvin et al's study, mean creatinine values used for calibration are in the critical range (0.982 and 0.977 mg/dL [87 and 86 $\mu\text{mol/L}$]).¹ Thus, factor correction should be precisely recalculated for this range, but based on the data from both Levey et al and Selvin et al,¹ the "new" factor would certainly be higher than 175.

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