eGFR Discussion

Most major commercial manufacturers are using calibrators that are now traceable to IDMS with the exception of the Siemens Diagnostics Dimension analyzer, which produces values that are similar to those from IDMS-traceable calibrations. Participants were asked to identify their calibration type (traditional or IDMS). Some participants are continuing to use the traditional MDRD equation, which will produce eGFR values that are 5 to 10% too high when using IDMS-traceable calibrators. This occurs because the traditional calibration method that was used to derive the MDRD equation was biased high. The Laboratory Working Group of the NKDEP recommends that laboratories implement the MDRD equation to estimate GFR.

Some participants may be using a more recently reported equation, CKD-EPI (see Levey AS, Stevens LA, Schmid CH, et al. A new equation to estimate glomerular filtration rate. *Ann Intern Med.* 2009;150:604-12). At this time, the NKDEP has not yet formally recommended adoption of the CKD-EPI equation. The CKD-EPI equation provides improved estimates of GFR in patients with higher GFRs than does the MDRD equation.

eGFR Calculations

Participants calculated the eGFR using their first result for specimens LN24-02 and LN24-03. The following table shows the percentage of laboratories that reported an eGFR that was within the acceptable range. Calculations of eGFR within ±1 mL/min/1.73 m^2 were deemed acceptable.

LN24-02			
Equation	Calibration Type	Acceptable	Unacceptable
4 PARAMETER MDRD	IDMS-Traceable	173	43
	Traditional	11	7
CKD-EPI	IDMS-Traceable	111	10
	Traditional	0	5
LN24-03			
Equation	Calibration Type	Acceptable	Unacceptable
4 PARAMETER MDRD	IDMS-Traceable	180	36
	Traditional	11	7
CKD-EPI	IDMS-Traceable	105	16
	Traditional	0	5

LN24-02 was reported to be from a 67-year-old non-African American (Native American) male. If the laboratory determined the creatinine to be 1.355 mg/dL (119.912 µmol/L) using an IDMS-traceable method, the eGFR should be 52 mL/min/1.73 m2 (MDRD equation) or 54 mL/min/1.73 m2 (CKD-EPI equation).

LN24-03 was reported to be from a 19-year-old non-African American (Hispanic) female. If the laboratory determined the creatinine to be 1.970 mg/dL (174.336 µmol/L) using an IDMS-traceable method, the eGFR should be 33 mL/min/1.73 m2 (MDRD equation) or 36 mL/min/1.73 m2 (CKD-EPI equation).

Laboratories with an unacceptable result for eGFR calculation should investigate the source of error and correct it.

The Instrumentation Resource Committee will be revising the evaluation criteria as new information becomes available. Please direct any comments, questions, or suggestions to Karen Rivera at 800-323-4040, extension 7715 or e-mail krivera@cap.org. Again, thank you for your participation in this accuracy-based CAP Calibration Verification/Linearity Survey.

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