



## Creatinine and eGFR

Laboratory Alliance uses the Siemens Dimension and Dimension Vista Creatinine methods for serum, plasma, urine and fluid creatinine analysis. These methods are modifications of the kinetic Jaffe reaction for the quantitative measurement of creatinine. For routine creatinine testing, the National Kidney Disease Education Program (NKDEP) recommends that clinical laboratories use methods that are calibrated and traceable to the Isotope Dilution Mass Spectrometry (IDMS) reference method.<sup>1</sup> Standardization with the IDMS reference method will reduce the inter-laboratory bias in results and yield more accurate estimated glomerular filtration rates (eGFR) when using the IDMS-traceable Modification of Diet in Renal Disease (MDRD) Study equation.<sup>1</sup> Modifications to our creatinine reporting will be implemented on October 6, 2015 to comply with the NKDEP recommendation.

### **Creatinine**

Effective October 6, 2015, all creatinine testing performed by Laboratory Alliance will provide IDMS-traceable results. Because the current method was correlated to IDMS, results will be similar using the new method. However, the improved precision of the assay will allow reporting using 2 decimal places.

Reference Ranges (effective October 6, 2015):

Serum or Plasma:

Male: 0.80 – 1.30 mg/dL  
Female: 0.60 – 1.00 mg/dL

Urine: 0.60 – 2.50 g/24h

Also concurrent with the use of the new reporting method, critical values are adjusted to the levels listed below:

<u>Age</u>	<u>Critical Value</u>
0 – 28 days	>2.00 mg/dL
1 month – 17 years	>2.50 mg/dL
Adult (≥18 years)	>5.00 mg/dL

### Estimated Glomerular Filtration Rate (eGFR)

Since we began reporting eGFR in 2005, Laboratory Alliance has used the MDRD Study 4-variable equation to calculate estimated GFR. Concurrent with the change to report IDMS-traceable correlated results, the IDMS-traceable MDRD Study equation<sup>3</sup> will be used:

$$\text{GFR (mL/min/1.73 m}^2\text{)} = 175 \times (\text{Scr})^{-1.154} \times (\text{Age})^{-0.203} \times (0.742 \text{ if female}) \times (1.212 \text{ if African American})$$

In addition the following changes will occur:

- eGFR will be reported on all adult patients (age 18 and older)
- eGFR calculated to be greater than 60 mL/min/1.73m<sup>2</sup> will be reported as >60 mL/min/1.73m<sup>2</sup>

We will continue to report both the African American and non-African American calculated values for each patient.

Clinical practice guidelines with limitations for use of the MDRD Study equation when reporting eGFR can be found on the NKDEP, KDOQI, and IFKF websites.<sup>2, 3, 4</sup>

Questions regarding this test may be directed to Cheryl Haskins, MS, MT(ASCP)SC, Manager, Chemistry and Referral Testing, at 315-410-7014 or [cherylhaskins@lacny.com](mailto:cherylhaskins@lacny.com).

### References:

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2. National Kidney Disease Education Program (NKDEP): Creatinine Standardization Program; Tools and resources for health professionals, GFR calculators. Retrieved January 2011, available from: [http://www.nkdep.nih.gov/professionals/gfr\\_calculators/index.htm](http://www.nkdep.nih.gov/professionals/gfr_calculators/index.htm)
3. National Kidney Foundation Kidney Disease Outcome Quality Initiatives (NKF K/DOQI) Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification. Part 5. Evaluation of Laboratory Measurements for Clinical Assessment of Kidney Disease. Guideline 4. Estimation of GFR.2000. Retrieved December 2010, available from: [http://www.kidney.org/professionals/kdoqi/guidelines\\_ckd/p5\\_lab\\_g4.htm](http://www.kidney.org/professionals/kdoqi/guidelines_ckd/p5_lab_g4.htm)
4. The International Federation of Kidney Foundations (IFKF), WEBLINKS. <http://www.ifkf.net/WEBLINKS/tabid/86/Default.aspx>
5. Correlation of Jaffe CREA Methods with the IDMS Reference Method, Technical Bulletin D-01674, March 2011, Rev. 2.0. Siemens Healthcare Diagnostics, Inc. 1717 Deerfield Road, Deerfield, IL 60015-0778 USA [www.siemens.com/diagnostics](http://www.siemens.com/diagnostics)