MEMORANDUM

TO: All Physicians

FROM: Katalin Banki, M.D., Director of Core Laboratory
       Stephen Gwilt, MS, MT(ASCP)SH, SC, Supervisor, Core Laboratory

DATE: February 17, 2016

RE: CKD-EPI creatinine equation to estimate GFR

Effective March 7, 2016, the Core Laboratory at Upstate Medical University Downtown Campus will estimate creatinine-based glomerular filtration rate by using the 2009 CKD-EPI (Chronic Kidney Disease-Epidemiology Collaboration) equation.

Background:
The National Kidney Foundation recommends replacing the currently used MDRD equation by the CKD-EPI equation. The 2009 CKD-EPI

- is more accurate, particularly at higher GFR values of > 60 mL/min/1.73 m²
- performs better in the elderly
- improves clinical risk assessment

Formula: eGFR = 141 x min(SCr/k, 1)^0.9 x max(SCr/k, 1)^1.209 x 0.993^Ages x 1.018 [if female] x 1.159 [if Black]

What is changing:
- The estimated GFR_{creat} will be calculated for patients up to 80 years-of-age.
- Numeric values will be reported up to 120 mL/min/1.73 m².
- Compared to the MDRD, the prevalence of abnormal GFR (<60 mL/min/1.73 m²) decreases (in the general population from 8.7% to 6.3%)
- eGFR will now be calculated on all ordered serum creatinines

What is not changing:
- eGFR are reported for African-Americans and non-African Americans
- eGFR_{creat} has to be calculated at the bedside for patients <18 and >80 years-old
- Creatinine-based estimating equations are not recommended for use with:
  - unstable serum creatinine (pregnancy, serious co-morbid conditions, hospitalized patients, particularly those with acute renal failure)
  - extremes in muscle mass and diet (amputees, paraplegics, bodybuilders, obese patients, malnutrition, vegetarian or low-meat diet)

Creatinine Method: Jaffe method, traceable to isotope dilution MS, by Roche.
Performed: 24/7
Turn-around Time: STAT: 90 minutes
                  Routine: 4 hours
Reference Range: eGFR_{creat} >60 mL/min/1.73 m²

References:


750 East Adams Street | Syracuse, NY 13210 | Ph: 315.464.4460 | Fax: 315.464.6733 | www.upstate.edu | State University of New York