BIRMINGHAM, Ala. – A new risk predictor for diagnosing kidney disease and measuring its progression could help physicians focus treatment efforts more efficiently, says study findings co-authored by University of Alabama at Birmingham researchers and published in the May 9, 2012 issue of the Journal of the American Medical Association.

More than 26 million Americans have chronic kidney disease, according to the National Kidney Foundation, and the more accurately it can be diagnosed, the better physicians can prevent its progression to kidney failure and other related complications including heart disease and death.

Using the newest risk predictor, the Chronic Kidney Disease Epidemiology Collaboration equation, or CKD-EPI, fewer individuals in the study were classified as having chronic kidney disease. This equation more accurately categorized the risk for death and end-stage renal disease than its more widely used counterpart, the Modification of Diet in Renal Disease Study equation. The findings suggest that switching to the CKD-EPI equation could help physicians focus treatment efforts more efficiently and improve assessment of a patient's risk of end-stage renal disease and other complications.

Kidney function is measured by estimating glomerular filtration rate using kidney filtration markers that are present in the blood. A higher filtration rate means healthy kidney function. A lower rate indicates kidney disease and is used to measure its progression.

"Compared to the MDRD Study equation, the CKD-EPI equation more accurately estimates GFR using the same variables — age, sex, race and serum creatinine level — especially at higher GFR," says UAB co-author David Warnock, M.D., Hilda B. Anderson Endowed Chair in Nephrology in the UAB Division of Nephrology. "It also more consistently classified future complication risks — mortality and the need for dialysis — than the MDRD Study equation. This was true across a wide range of populations."

The study, which included data from more than 1 million adults ages 18 years and older in 40 countries or regions — Asia, Europe, North America, South America, Middle East and Oceania — compared the risk for adverse outcomes using estimated GFR calculated by the CKD-EPI versus GFR calculated by the MDRD Study equation. The primary adverse outcomes the researchers looked at were all-cause mortality, cardiovascular mortality and end-stage renal disease.

"About one-third of patients with mild to moderate kidney disease had a higher GFR category

when the CKD-EPI equation was used compared to the MDRD Study equation," Warnock says. "The same group also had up to a two-fold lower risk of dying or developing end-stage renal disease — even after adjusting for other factors that affect kidney disease risk."

Currently, more than 90 percent of the medical laboratories in the United States use the MDRD Study equation more than 300 million times each year to assess kidney function.

"I believe this study is conclusive evidence that the CKD-EPI equation translates to better risk prediction and should become the standard," Warnock says. "It allows more accurate GFR estimation, lower CKD prevalence estimates and better risk categorization by the CKD-EPI equation without additional costs."

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The study was performed for the research group, the Chronic Kidney Disease Prognosis Consortium. It was established by Kidney Disease: Improving Global Outcomes, a global non-profit foundation dedicated to improving the care and outcomes of kidney disease patients worldwide. Funding for the research was provided by the National Kidney Foundation.

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