



TECHNICAL NOTICE

SOUTH BEND MEDICAL FOUNDATION

March 2009

Glomerular Filtration Rate

Effective Date: Immediately

Method: Estimated glomerular filtration rate (eGFR) is calculated based on IDMS-traceable MDRD Study Equation.

Use:

An eGFR from serum creatinine is a practical way to detect, evaluate, and manage people with chronic kidney disease (CKD) and people with risk factors for CKD, such as diabetes, hypertension, cardiovascular disease, or family history of kidney disease.

Clinical Significance:

The guidelines of the National Kidney Foundation's kidney disease outcome quality initiative classifies stages of chronic kidney disease according to the level of estimated Glomerular Filtration Rate, which is considered the best index of kidney function in both health and disease. GFR is a direct measurement of kidney function and is reduced before the onset of symptoms of kidney failure. A decrease in GFR correlates with a pathologic severity of kidney disease. Replacement therapy with dialysis or transplantation becomes necessary when GFR decreases to less than 15 mL/min/1.73m².

Since serum creatinine concentration should not be used alone to assess the level of kidney function, it is recommended that clinical laboratories report an estimation of GFR. SBMF provides this information with every serum creatinine result. The GFR is calculated based on IDMS-traceable MDRD Study Equation that includes: sex, race, age, and serum creatinine. The MDRD Study equation has been validated extensively in white and African-American populations with impaired kidney function (eGFR less than 60 mL/min/1.73 m²) and ages between 18 and 70 years.

The table below defines the definitions and stages of chronic kidney disease based on the GFR. Measurement of creatinine clearance using timed 24-hour urine collection does not improve the estimation of GFR over that provided by prediction equations. Twenty-four-hour urine samples provide useful information for estimation of GFR in individuals with exceptional dietary intake (vegetarian diet or use of creatinine supplements) or muscle mass (amputation, malnutrition, muscle wasting), and are also used to assess diet and nutritional status, and indicate the need to start dialysis. The public health goal of the National Kidney Disease Education Program (NKDEP) is to identify patients with stage 3 CKD so they can be put on effective treatment to slow progression of the disease.

Reference Range:

GFR (mL/min/1.73 m ²)	Stage of Chronic Kidney Disease
Equal to or greater than 60	Normal
30-59	3
15-29	4
Less than 15 or dialysis	5

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Please direct questions or comments regarding this notice to Robert Tomec, M.D. or Deborah H. Sun, Ph.D., at South Bend Medical Foundation, (574) 234-4176 or (800) 544-0925.