Alberta Health Services

Laboratory Bulletin

Date: **April 24, 2013**

To: **All Zones**
Physicians, Nurse Managers, Educators and Practitioners, Pharmacy Services, Diagnostic Imaging, Laboratory Directors and Managers

From: **AHS Laboratory Services**

Re: **Use of the CKD-EPI Equation for Reporting Estimated Glomerular Filtration Rate in Alberta**

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Key Messages:

- Chronic kidney disease (CKD), defined as glomerular filtration rate (GFR) <60 mL/min/1.73m^2 or urine albumin-creatinine ratio ≥ 3 mg/mmol persistent for > 3 months, is an increasingly recognized public health problem. Early recognition and aggressive management of patients with CKD has been shown to prevent/delay the need for dialysis. Studies show that not all patients with CKD receive therapies which might reduce their renal and cardiovascular risk, partly because CKD is often unrecognized until kidney failure is severe.

- **Effective April 30, 2013 the CKD-EPI equation will be used to estimate GFR in Alberta. Values for the CKD-EPI equation will be reported across the range of GFR, for both community and in-patients.**

- The following comment will be appended to all estimated GFR (eGFR) results:

  Chronic kidney disease is defined by GFR < 60 mL/min/1.73 m2 or urine albumin-creatinine ratio > 3 mg/mmol for more than 3 months (see www.akdn.info).

Background:

- Although commonly used, serum creatinine (sCr) is not an ideal marker of kidney function since it is affected by age, sex and body mass. In fact sCr often remains within the normal range until kidney function is significantly impaired, especially in older individuals or those with low muscle mass.

  - Glomerular filtration rate is a better measure of kidney function than sCr, and has been estimated since 2004 in Alberta using the modification of diet in renal disease (MDRD) equation. This equation combines the patient's age and sex with the measured sCr value.

  - **More recently the CKD-EPI formula has been shown to provide a more accurate measure of GFR, particularly at higher levels of GFR, and (unlike the MDRD equation) can be used to estimate kidney function in people with eGFR > 60 mL/min/1.73m^2.**

Action Required:

IF the eGFR is…	THEN…
< 60 mL/min/1.73m^2 for ≥ 3 months	• The patient has chronic kidney disease. • Reversible causes of kidney failure should be considered. • A measure of urine protein should be obtained (random urine albumin-creatinine ratio is recommended). • The risk of progressive kidney disease should be assessed by follow-up measurement(s) of eGFR. • Consideration should be given to: use of an angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker in people with CKD who have either diabetes or proteinuria; lowering blood pressure (target < 140/90 in people with CKD; < 130/80 in people with diabetes); and optimization of glycemic control (in people with diabetes). • Non-steroidal anti-inflammatory drugs (NSAIDS) and other nephrotoxins, such as intravenous contrast, should be avoided if possible.
< 30 mL/min/1.73m^2	• The patient has severely impaired kidney function and should be assessed by a specialist in Nephrology (or Internal Medicine if Nephrology consultation not feasible).
< 15 mL/min/1.73m^2	• The patient has kidney failure and requires urgent assessment by a Nephrologist.

Additional Information:

- Further information on measurement of kidney function using the CKD-EPI GFR, as well as information on assessment and treatment of patients with CKD, can be obtained at the Alberta Kidney Disease Network (www.akdn.info).

Inquiries and feedback may be directed to:

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This bulletin has been reviewed and approved by:
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