

Provincial Laboratory Services



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Unit Change for Protein-to-Creatinine Ratio in Random Urines

April 19, 2022

This information applies to: Island Physicians, Nurse Practitioners, Obstetrics, Nephrology

As of **April 21, 2022** the Clinical Chemistry Division will report spot urine **protein-to-creatinine ratio (PCR) in units of mg/mmol Creatinine**. This change supports guideline-based targets for clinical decision-making for spot urine samples. The ratio for random urines previously reported as g/mmol Creatinine, and users must consider the unit change when trending results in powerchart. An interpretive comment notifying users of this change will be appended to every PCR report for at least one year. There is no change in how PCR is ordered, or the units expressed for protein concentration in spot urine samples (g/L) or timed collections, i.e. 24-hour urines reported in g/day.

Considerations for measuring proteinuria in spot urine samples

The first line test of proteinuria is a morning Albumin-to-creatinine ratio (ACR). Urinary albumin is the most sensitive and specific urine test of glomerular permeability, and because urine albumin measurements are relatively well-standardized it is linked with clinical outcomes in chronic kidney disease, diabetes, hypertension and systemic sclerosis. QEH Chemistry has validated an expanded reportable range for this assay to reduce the need for repeat collections.

A secondary test of proteinuria is the Protein-to-creatinine ratio (PCR), which is of limited value for routine patient care. Urine protein assays are difficult to standardize because urine specimens contain variable amounts of different proteins and inorganic acids that affect assay chemistry in unpredictable ways. Therefore, a clinically significant changes in urine albumin excretion may not be detected with a PCR assay. There are clinical use cases for a morning PCR including to monitor preeclampsia risk in pregnancy¹, and for monoclonal gammopathies². Clinical practice guidelines that include PCR targets^{1,2} endorse reporting PCR in the same units as ACR, i.e. mg/mmol Creatinine.

For more information, contact:

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¹SOGC Clinical Practice Guideline, *J. Obs. Gyn. Can.*, 36(5), 2014\

²KDIGO Clinical Practice Guideline, *Kid. Int.*, 3(1), 2013