



Analysis on weight–turnaround time properties for point-of-care testing tool for microalbumin determination: implication for using in distanced site

Viroj Wiwanitkit

To cite this article: Viroj Wiwanitkit (2010) Analysis on weight–turnaround time properties for point-of-care testing tool for microalbumin determination: implication for using in distanced site, Renal Failure, 32:4, 533-534, DOI: [10.3109/08860221003664249](https://doi.org/10.3109/08860221003664249)

To link to this article: <https://doi.org/10.3109/08860221003664249>



Published online: 06 May 2010.



Submit your article to this journal [↗](#)



Article views: 369



View related articles [↗](#)

BRIEF REPORT

Analysis on weight–turnaround time properties for point-of-care testing tool for microalbumin determination: implication for using in distanced site

Viroj Wiwanitkit

Thai Diabetes POCT Forum, Wiwanitkit House, Bangkhuae, Bangkok 10160, Thailand

ABSTRACT

Microalbumin is a basic biochemical test that is widely used at present. Owing to the concept of point-of-care testing (POCT), there are tools available for analysis of microalbumin. Here, the author performs a brief assessment on weight–turnaround time properties for available POCT for determination of microalbumin in Thailand.

Keywords: POCT; microalbumin

Received 14 October 2009; accepted 11 January 2010

Correspondence: Prof. Viroj Wiwanitkit, Thai Diabetes POCT Forum Wiwanitkit House, Bangkhuae, Bangkok 10160, Thailand; tel: +66-82-348832; E-mail: wviroj@yahoo.com

INTRODUCTION

Point-of-care testing (POCT) is the new concept in laboratory medicine. It is presently accepted as a useful diagnostic tool.¹ This can help quicken the time used for laboratory results.^{1,2} There are many new analyzers in laboratory medicine that use the POCT principle. One of the most widely used group of POCT analyzers is the POCT analyzers for diabetes mellitus (DM).¹ First, the POCT analyzer for blood glucose is produced and accepted as a pioneer beta version of POCT analyzer.¹ At present, there are other POCT analyzer tools that can be used in diabetic medicine. An important tool is the microalbumin POCT analyzer.^{3,4}

Basically, microalbumin is a basic biochemical parameter that is widely used at present. The microalbumin is a very low level of albumin in urine that cannot be determined by old classical technique. Determination of microalbumin is useful for the detection of renal glomerular pathology at the early reversible stage.^{5,6} The microalbumin can be seen in diabetic nephropathy, hypertension-induced nephropathy as well as many other diseases. In the present day, the POCT microalbumin analyzer is the new useful tool that can help shorten the waiting time of the patients for the laboratory result. This can help fasten the management decision of the case.^{3,4}

In this specific article, the author assesses on the available POCT microalbumin analyzers in Thailand.

Based on the basic concept that a good POCT analyzer has to be easy to carry for usage at bed site and distanced setting and should provide fast result. The author assesses on the weight–turnaround time properties of available POTC microalbumin analyzers in Thailand. This is useful data for implication for using in distanced site

MATERIALS AND METHODS

The study is designed as a descriptive study. The author collected the data on the available microalbumin POCT analyzers in Thailand with the special help of a main POCT company in Thailand, Connect Diagnostics Thailand. For further assessment, the basic effort–utility analysis is applied. A principle of property per utility analysis was used. The utility in this work was defined as the weight of the analyzer, which is the actual effect that the practitioner has to carry for using in the real distanced size. The utility in this work was defined as the turnaround time, which is the main concept for any POCT analyzer.

RESULTS

According to the literature searching, complete data on three available POCT analyzers in Thailand were derived. From further assessment, the identified effort

TABLE 1. Weight and turnaround time of available microalbumin POCT analyzers in Thailand.

Property	A	B	C
Weight (kg)	3.88	3.88	2
Utility (turnaround time: min)	7	7	12

Note: A, Siemen DCA2000+; B, Siemens DCA Vantage; C, iChroma.

TABLE 2. Effort per utility analysis.

	A	B	C
Turnaround time per unit weight	1.08	1.08	6

Note: A, Siemen DCA2000+; B, Siemens DCA Vantage; C, iChroma.

and utility for each analyzer is shown in Table 1. The turnaround time per unit weight is shown in Table 2.

DISCUSSION

Although microalbumin has been used in medicine for a long time, the introduction on POCT analyzer for microalbumin determination was recently done. In Thailand, the tool has only been used for a few years. According to the preventive nephrology concept, early detection of the nephropathy is favorable.^{7,8} It is better to detect such disorder that is still reversible, and the use of microalbumin screening is accepted for its usefulness.^{7,8} In the past, determination for microalbumin is very hard and time-consuming process. Sometimes it is necessary to wait for the laboratory result up to a week. With development and introduction of POCT analyzer for microalbumin determination, this problem can be resolved.

The present use of POCT analyzer for microalbumin determination becomes a new alternative for early detection of the problem. This can be very useful in far distanced areas where a standard laboratory has never reached.⁹ The small POCT analyzer can be carried by the practitioner in the screening team to detect the

problem among people in rural distanced area. Finding whether a POCT analyzer is the best tool is the present question leading to the assessment in this report. Basically, the tool for this purpose must provide good results in a short turnaround time, and the effect to carry the tool into the distanced area must be minimal. An effort–utility model is drawn and used for assessment in this work.

According to the analysis, the turnaround time per unit weight of the iChroma (BodiTechMed, Korea), which is the lightest POCT analyzer, was approximately six times higher than the two available analyzers. This analyzer seems to be inappropriate for real usage in the distanced area compared to the other analyzers Siemen DCA2000+ (Siemens Medical Solutions Diagnostics, USA) and Siemens DCA Vantage (Siemens Medical Solutions Diagnostics, USA).

Declaration of interest: The author is a scientific consultant for Connect Diagnostics Thailand who support literature searching in this work.

REFERENCES

- [1] Hyodo H, Furuta H. POCT and system. *Rinsho Byori*. 2002;50(10):940–946.
- [2] Bissell M. Point-of-care testing at the millennium. *Crit Care Nurs Q*. 2001;24(1):39–43.
- [3] Warsinke A. Point-of-care testing of proteins. *Anal Bioanal Chem*. 2009;393(5):1393–1405.
- [4] Armor BL, Britton ML. Diabetes mellitus non-glucose monitoring: Point-of-care testing. *Ann Pharmacother*. 2004;38(6):1039–1047.
- [5] Matsuyama T. Recent progress in diagnoses of diabetes and its complications. *Rinsho Byori*. 1995;43(12):1235–1240.
- [6] Weir MR. Microalbuminuria in type 2 diabetics: An important, overlooked cardiovascular risk factor. *J Clin Hypertens (Greenwich)*. 2004;6(3):134–141.
- [7] Luft FC. Microalbuminuria and essential hypertension: Renal and cardiovascular implications. *Curr Opin Nephrol Hypertens*. 1997;6(6):553–557.
- [8] Koulouridis E. Diabetic nephropathy in children and adolescents and its consequences in adults. *J Pediatr Endocrinol Metab*. 2001;14(Suppl. 5):1367–1377.
- [9] Shephard MD, Mazzachi BC, Watkinson L, et al. Evaluation of a training program for device operators in the Australian Government's point of care testing in general practice trial: Issues and implications for rural and remote practices. *Rural Remote Health*. 2009;9(3):1189.