



Cost performance analysis of glucometer; a situation analysis from Thailand

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Introduction

Diabetes mellitus is an important metabolic disorder that can be seen worldwide. It is an important public health problem since it can result in several complications such as renal problem. The blood glucose monitoring is the requirement in management of the patients with diabetes mellitus. Glucometer is the specific point-of-care testing (POCT) tool that can monitor blood glucose at site. There are many available glucometers at present, which have to be tested for accuracy before getting approval for marketing (1, 2). Nevertheless, the economic problem is common problem worldwide.

In this study, the authors perform a cost performance analysis of available glucometers in Thailand. The analysis can give the information for proper selection of glucometer for clinical use.

Materials and Methods

The authors performed a cost performance analysis of overall 10 kinds of available glucometers in Thailand. The studied glucometers include Accu-Chek Performa, Medisafe EX, Lumina OK Meter, Glucosure Autocode, Easy Max Mini, Accu-Chek Active, Exactive Vital, OneTouch Select Simple, Accu-Chek Guide and GlucoLeader.

For analysis, the cost is referred to the standard commercial price list by Thai ministry of public health.

Implication for health policy/practice/research/ medical education

Diabetes mellitus is an important metabolic disorder that can be seen worldwide. It is an important public health problem since it can result in several complications such as renal disease. The blood glucose monitoring is the requirement in management of the patients with diabetes mellitus. Glucometer is the specific point-of-care testing tool that can monitor blood glucose at site. There are many available glucometers at present. In this study, the authors perform a cost performance analysis of available glucometers in Thailand. The analysis can give the information for proper selection of glucometer for clinical use.

Keywords: Glucometer, Cost, Performance, Diabetes mellitus, Renal disease, Blood glucose

The main performances of the glucometer for serving the use as POCT tool are assessed. The main performances are a) the required amount of blood sample for analysis and b) the turnaround time. The cost performance analysis is done as the cost per performance for each studied glucometer is further compared.

Results

The cost and performance of each available glucometer is shown in Table 1. According to the analysis, Accu-Chek Guide has the highest cost per performance.

Table 1. Cost performance analysis of available glucometers

Glucometers	Cost (USD)	Performance		Cost per performance (USD/ μ L*second)
		Require blood sample (μ L)	Turnaround time (second)	
Accu-Chek Performa	77	0.6	5	25.7
Medisafe EX	60	0.6	5	20
Lumina OK Meter	29	0.7	6	6.9
Glucosure Autocode	30	0.6	5	10
Easy Max Mini	31	0.6	5	10.3
Accu-Chek Active	36	2	5	3.6
Exactive Vital	21	0.6	5	7
OneTouch Select Simple	34	1	5	6.8
Accu-Chek Guide	78	0.6	4	32.5
GlucoLeader	45	1	10	4.5

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Discussion

For any new POCT technology, the important concerns are both cost and performance. The cost performance analysis can help the practitioner select proper POCT tool. The good tool should have low cost, require little amount of blood and give fast turnaround time (3). The evaluation of the new available glucometer usually focuses on the performance. For example, Yoo et al evaluated a new glucometer available in Korea and concluded that the tool could provide fast turnaround time (4).

In this article, the authors evaluate the available glucometers based on Thai situation. Several kinds of glucometers are available with various performances. The cost performance analysis can show a significant difference among the various kinds of glucometers. The data can be useful for the practitioner to select the proper glucometer and also useful for the policy maker for controlling the price of the glucometer.

Authors' contribution

Both authors wrote the manuscript equally.

Conflict of interests

The authors declared no competing interests.

Ethical considerations

Ethical issues (including plagiarism, misconduct, data fabrication, falsification, double publication or submission, redundancy) have been completely observed by the authors.

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