



Title	Monitoring Blood Glucose Control in Diabetes Mellitus: A Systematic Review.
Agency	NCCHTA, National Coordinating Centre for Health Technology Assessment Mailpoint 728, Boldrewood, University of Southampton, Southampton SO16 7PX, United Kingdom tel: +44 2380 595586, fax: +44 2380 595639
Reference	Health Technol Assess 2000;4(12). May 2000. www.ncchta.org/execsumm/summ412.htm

Aim

To evaluate evidence for the clinical and cost effectiveness of different methods for monitoring blood glucose control in diabetes mellitus (DM).

Conclusions and results

- Blood or urine glucose self-monitoring is widely used by patients with type 2 diabetes, but there is a lack of evidence to show that the technique is effective at improving blood glucose control or other clinical and patient outcomes. No evidence shows that blood glucose control is better in patients who use blood rather than urine glucose monitoring.
- Blood glucose monitoring is well-established in the management of type 1 diabetes, but more evidence for the optimal use of the technique is needed.
- There is a lack of evidence concerning the use of self-monitoring in diabetes in pregnancy.
- Results from the Diabetes Control and Complications Trial in type 1 DM and the UK Prospective Diabetes Study in type 2 DM have demonstrated the clinical effectiveness of measuring glycated hemoglobin (HbA1c) to monitor blood glucose control. Greater emphasis should be given to extending use of HbA1c in assessing blood glucose control and to assay standardization.

Recommendations

Standard protocols for evaluation of blood glucose monitoring devices should be developed.

Methods

The literature was systematically reviewed. The authors' personal collections, Diabetes Care and Diabetic Medicine (1990–99), MEDLINE, EMBASE, and the Index and Bibliography of Social Sciences were searched.

Citations from papers retrieved were screened. Letters were sent to the British Diabetic Association and leading manufacturers. Retrieved papers were evaluated for quality by two independent reviewers. Data were abstracted and synthesized using meta-analysis where possible.

Further research/reviews required

- Randomized studies should be carried out to provide decisive evidence on the clinical and cost effectiveness of blood glucose self-monitoring in type 2 DM and gestational DM (GDM).
- Observational studies should be carried out in samples of subjects with type 1 DM to identify groups of patients in whom blood glucose self-monitoring is of benefit and groups in whom it is not.
- Studies should include not just assessment of glycated hemoglobin (GHb), but also the occurrence of hypoglycemia, patients' satisfaction with care, and health-related quality of life.