The diabetes pandemic: is structured education the solution or an unnecessary expense?

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study evaluated the effectiveness and potential cost savings of implementing the Expert Patient Education versus Routine Treatment (X-PERT) structured diabetes education programme, in the UK. The author concluded that structured education was clinically effective and cost-effective. The methods were well reported, but the low reporting of audit data, by participating organisations, makes the findings uncertain, but suggestive of benefits from structured education.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study evaluated the effectiveness and potential cost savings of implementing the Expert Patient Education versus Routine Treatment (X-PERT) structured diabetes education programme, nationwide, in the UK.

Interventions
The X-PERT structured programme comprised six, weekly sessions, each lasting 2.5 hours (15 hours in total). The comparator was the audited standard, based on a randomised controlled trial of the X-PERT programme (see Other Publications of Related Interest) and UK guidelines.

Location/setting
UK/primary care.

Methods
Analytical approach:
Audit data were collected from 118 organisations that registered to participate in the national X-PERT database. The data were voluntarily submitted, and covered the outcomes and participation. The outcome data were statistically analysed over time and compared with the audit standard. The author stated that the perspective was that of the UK NHS.

Effectiveness data:
The programme effectiveness data included attendance, participant satisfaction, and participant empowerment. The clinical effectiveness outcomes included blood glucose; body weight, BMI, and waist circumference; blood pressure; and cholesterol and triglyceride levels. Reductions in diabetes medicine intake were also measured. These data were from the national audit database.

Monetary benefit and utility valuations:
Not applicable.

Measure of benefit:
There was no summary measure of benefit. The results were presented separately for each effectiveness outcome.

Cost data:
The direct costs included the programme and medications. The programme costs included training, equipment, participant handbooks, travel, refreshments, quality assurance, and audit. These were from the X-PERT randomised controlled trial. Medication costs were from the Monthly Index of Medical Specialties (MIMS) database, and included
metformin, sulphonylurea, thiazolidinediones, dipeptidyl peptidase 4 inhibitors, insulin, and incretin mimetics. The costs were reported in UK £.

Analysis of uncertainty:
Two alternative cost assumptions were explored; one including labour and administration and the other excluding them.

Results
There was a full set of clinical data for 2,474 participants at six months, 1,980 participants at one year, and 216 participants at two years. All clinical outcomes improved, with statistically significant improvements in: blood glucose, body weight, body mass index, waist circumference (female), systolic and diastolic blood pressure, total cholesterol, low-density lipoprotein cholesterol, and triglycerides (repeated measure analysis of variance). These improvements were associated with reduced diabetes medication.

Programme costs were £26 per participant without labour and administration, and £65 per participant with them. The average cost of one medication was £433 per year.

It was estimated that a group of four X-PERT educators, delivering 24 programmes per year, to 432 diabetes patients, could save £56,723 in medication costs. If all 2.8 million diabetics, in the UK, participated in X-PERT, the savings could be over £367 million.

Authors’ conclusions
The author concluded that structured education was clinically effective and cost-effective, and it should be offered nationally to all diabetics, as a key part of their disease management.

CRD commentary
Interventions:
The X-PERT programme was adequately described. The reference for the randomised controlled trial was provided, but it was not described, and no characteristics of the control were given.

Effectiveness/benefits:
Many outcomes were reported, but all of them were reported by only a few organisations, and the overall participation in the audit seemed poor. It was unclear why organisations did not report their data, and reporting bias was likely. Only 47% of participating organisations reported any data. For most clinical outcomes, less than 20% of organisations reported data. The data on diabetes medication reductions were from the X-PERT trial. At the start, there were 1,788 participants with medication data; at six months, there were 974 participants; at one year, there were 814 participants; and at two years, there were only 87 participants. No explanation was given for this very high loss to follow-up, and the data should be considered to be uncertain.

Costs:
The calculation of the cost of drugs was based on the average of all drug costs, without accounting for prescribing prevalence. The validity of the drug cost figure cannot be confirmed, but it is unlikely that the most expensive of the six drugs was prescribed at the same rate as the least expensive. The drug cost estimate should be considered to be uncertain. The price year was not reported, but the costs appear to have been from the 2011 audit.

Analysis and results:
The low reporting of audit data, by participating organisations, makes the findings uncertain. A more comprehensive costing analysis is required before robust conclusions on the cost savings can be made. There was no evaluation of uncertainty, and, given the level of missing audit data, the uncertainty should be considered to be very high.

Concluding remarks:
The methods were well reported, but the low reporting of audit data, by participating organisations, makes the findings uncertain, but suggestive of benefits from structured education.

Conflict of interest: The author was the chief executive of the X-PERT Health charitable organisation.
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Not stated.

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Other publications of related interest

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