Reducing risks in diabetes self-management: a systematic review of the literature
Boren SA, Gunlock TL, Schaefer J, Albright A

CRD summary
This review concluded that there was some evidence that educational self-management interventions for diabetes could provide benefits through reducing risk. Given the shortcomings in the review process, including the synthesis, the authors' conclusions cannot be considered to be reliable.

Authors' objectives
To assess risk-reducing interventions for diabetes self management.

Searching
MEDLINE, CINAHL (1990-2007) and Cochrane Central Register of Controlled Trials (first quarter 2007) were searched. Search terms were reported. The search was restricted to English-language studies. Studies published prior to 1990 were excluded. Reference lists of retrieved articles were searched for additional studies.

Study selection
Studies that evaluated a diabetes self-management intervention that aimed to reduce or minimise risks were eligible for inclusion in participants with type 1 or type 2 diabetes mellitus. The included studies compared various interventions and controls and all but one were randomised controlled trials (RCTs). A wide range of interventions were considered. The included studies addressed smoking cessation, eye examination, foot care, oral health, vaccination, cardiovascular risk reduction and comprehensive risk reduction. Included studies were in adults and children and/or adolescents. Where reported, the average patient age was between 37 and 81 years. The proportion of males ranged between 0 and 97%. A wide range of outcomes were considered. Duration of follow up varied between one month and seven years (in most studies it was less than 12 months).

Two reviewers independently screened titles and abstracts for selection. Potentially eligible studies were reviewed in full.

Assessment of study quality
Validity was assessed based on whether study methodology, findings and study design were reported in sufficient detail. The American Diabetes Association (ADA) Evidence Grading System for Clinical Practice Recommendations was also considered.

One author conducted the validity assessment, but it was unclear how the assessment was performed.

Data extraction
Data were extracted using a structured process by one reviewer. The data extraction was reviewed by a second reviewer; discrepancies were resolved through discussion and consensus.

Methods of synthesis
A narrative synthesis was provided, supported by evidence tables. The studies were grouped by the interventions evaluated.

Results of the review
A total of 33 studies were included (n=59,605, range 40 to 21,647, median 186) of which 32 were RCTs and 26 were accorded an ADA evidence grade A and six an ADA grade C; the uncontrolled study was graded C.

Smoking cessation (three studies, n=1,188): Two studies reported a significant change in at least one outcome. There were no significant improvements in either clinical outcomes or health status. All bar two behaviour outcomes yielded a significant improvement.
Eye examination (two studies, n=19,803): One of two studies showed a significantly greater improvement in the intervention group at six months and the other detected a significant improvement at 12 months.

Foot care (10 studies, n=7,739): All studies reported significant improvements for at least one outcome. Significant improvements were reported for numerous clinical and health status outcomes.

Oral health (two studies, n=209): For one study, significant improvements were observed in five clinical outcomes; no significant improvements in behaviour outcomes were observed in either study.

Vaccination (one study, n=21,647): A significant improvement in vaccination rate was observed for patient education signs and reminder stickers.

Cardiovascular risk reduction (nine studies, n=2,760): Five of 12 behaviour outcomes were associated with a significant improvement. Sixteen of 56 between-group clinical outcomes were associated with a significant improvement. Three of the six health outcomes considered had significant improvements. Four clinical measures showed significant improvement: HbA1c, serum cholesterol, systolic blood pressure and diastolic blood pressure.

Combined risk reduction (six studies, n=6,259): All studies showed a significant improvement in at least one outcome. Thirteen of 33 behaviour outcomes were associated with a significant improvement and 19 of 48 clinical outcomes were associated with a significant improvement.

Authors' conclusions
Educational self-management interventions could provide benefits through reducing risk in diabetes, but further studies were required to test specific interventions to reduce the risks of complications.

CRD commentary
The review question was clear. A small number of relevant databases were searched. The authors did not report searching for unpublished studies and this, together with the decision to limit the review to studies reported in English, may have led to the exclusion of relevant studies and the introduction of publication and language biases. Appropriate methods were employed to select studies for the review and to ensure that the data extraction was unbiased. There was no attempt to assess study quality beyond assignment to a hierarchy of evidence. Although a narrative synthesis was employed, there was no attempt to discuss outcomes within the context of the relevant studies and no attempt was made to inform the synthesis by using the limited information provided by the hierarchy of evidence. Given the shortcomings in the review process, including the synthesis, the authors’ conclusions cannot be considered to be reliable.

Implications of the review for practice and research
Practice: The authors did not state implications for practice.

Research: Further studies were required to test specific interventions to reduce the risk of diabetes complications. Studies should include well-designed intervention studies focused on diabetes risk reduction in areas such as diabetic nephropathy, medical records, eye examination, oral health and vaccination.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.