

## Diabetes Group Education and Self-Management Intervention Shows Mixed Results

Davies MJ, Heller S, Skinner TC, et al. Effectiveness of the diabetes education and self management for ongoing and newly diagnosed (DESMOND) programme for people with newly diagnosed type 2 diabetes: cluster randomised controlled trial. *BMJ* 2008;336:491–5.

### Study Overview

**Objective.** To evaluate the effectiveness of a structured group education program for patients with newly diagnosed type 2 diabetes.

**Design.** Multicenter, cluster randomized controlled trial.

**Setting and participants.** 207 general practices from 13 primary care sites in England and Scotland enrolled 824 adults with newly diagnosed type 2 diabetes (mean age, 59.5 years; 55% men). Practices were randomized to the intervention or to usual care. The intervention consisted of a 6-hour structured group education program delivered by 2 trained professional educators.

**Main outcome measures.** Hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) levels, blood pressure, lipid levels, weight, smoking status, quality of life, physical activity, illness beliefs, depression, and emotional impact of diabetes at 12 months. Psychosocial outcomes were evaluated using validated quality of life, diabetes self-care, and depression questionnaires.

**Main results.** At 12 months, HbA<sub>1c</sub> levels decreased by 1.49% in the intervention group compared with 1.21% in the control group. After adjusting for baseline and cluster effect, this outcome was not statistically significant. Changes in blood pressure and lipid levels at 12 months were not different between the 2 groups. The intervention group experienced a statistically significant reduction in weight at 12 months compared with the control group (–2.98 kg vs. –1.86 kg;  $P = 0.027$ ). The odds of not smoking in the intervention group were significantly higher at 12 months compared with the control group (odds ratio, 3.56 [95% confidence interval, 1.11–11.45];  $P = 0.033$ ). No difference in quality of life scores was detected, but at 12 months the intervention group had greater positive changes in illness beliefs ( $P = 0.001$ ) and a lower depression score (–0.50;  $P = 0.032$ ).

**Conclusion.** A structured group education program for newly diagnosed diabetic patients in the United Kingdom

did not lead to statistically significant changes in HbA<sub>1c</sub>, blood pressure, or lipid levels at 12 months compared with the control group. However, the program did result in greater weight loss, smoking cessation, positive illness beliefs, and decreased depression.

### Commentary

Many professional societies and national diabetes guidelines recommend structured self-management as an integral part of diabetes care. Until recently, evidence from high-quality trials was lacking in this area. The X-PERT program trial compared structured group self-management education with standard care by a dietitian in a randomized controlled trial of 314 diabetic patients from 3 U.K. cities [1]. X-PERT program participants had a significant decline in HbA<sub>1c</sub> values (absolute reduction, 0.7%) and improved body weight, diabetes knowledge, self-empowerment, physical activity, and food choices after 14 months. Similarly, the aim of this study by Davies et al (the DESMOND trial) was to determine if structured self-management education improved outcomes in newly diagnosed diabetic patients.

DESMOND had a number of strengths. It was undertaken across a large number of disparate primary care practices across the United Kingdom, and thus the results are more generalizable (at least to a U.K. setting) than those of the X-PERT trial. While cluster randomization was not an ideal trial design, it was successful in minimizing contamination between practices due to high participant recruitment and retention rates. For the most part, participants in the intervention and control groups were well-matched with the exception of slightly higher HbA<sub>1c</sub> levels in the intervention group. Finally, the intervention was well-designed for consistent training reproducibility and had a relatively low up-front training investment, which speaks to its ability to be easily implemented across other sites.

In contrast to the positive biomedical and psychosocial findings of X-PERT, the DESMOND study was only able to reproduce psychosocial improvements in diabetes self-management and understanding; however, weight loss and smoking cessation were notably improved. In order to

understand these results, examining the trial's methodologic limitations is important. First, a majority of patients were already being treated to target clinical endpoints, making it difficult to show any statistically significant benefits of the intervention. Thus, as the intervention encouraged participants to set their own personal goals, participants may have focused more on psychosocial than biomedical outcomes [2]. In addition, the control group sites were compensated to provide their enrolled patients with an equivalent amount of provider contact time as compared with intervention group practices. Therefore, the control practices were not a true baseline and may have biased the results toward the null hypothesis. Furthermore, this trial was aimed at early diabetes care, where large gains are often seen in all groups receiving medical care after the initial diagnosis [2]. Finally, while psychosocial and self-management goals are laudable, long-term evidence is lacking that these intermediate out-

comes translate into meaningful reductions in hard clinical endpoints, such as mortality and cardiovascular morbidity.

### Applications for Clinical Practice

Efforts to improve diabetes self-care through structured patient group education may improve intermediate psychosocial outcomes, but the overall clinical efficacy of this approach is still unclear.

—Review by Asaf Bitton, MD

### References

1. Deakin TA, Cade JE, Williams R, Greenwood DC. Structured patient education: the diabetes X-PERT Programme makes a difference. *Diabet Med* 2006;23:944–54.
2. Dinneen SF. Structured education for people with type 2 diabetes [editorial]. *BMJ* 2008;336:459–60.

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