Implementing a State-Based Cardiovascular Disease and Diabetes Prevention Program

OBJECTIVE — To evaluate weight loss and cardiometabolic risk reduction achieved through an adapted Diabetes Prevention Program intervention among adults at high risk for cardiovascular disease (CVD) and diabetes.

RESEARCH DESIGN AND METHODS — Eight health care facilities implemented a group-based lifestyle intervention beginning in 2008. Participants attended 16 weekly core sessions followed by 6 monthly after core sessions.

RESULTS — A total of 1,003 participants were enrolled, 816 (81%) completed the core and 578 (58%) completed the after core. Of participants completing the core and after core, 45 and 57% achieved the 7% weight loss goal, respectively. There were significant improvements in blood pressure, fasting glucose, and LDL cholesterol among participants completing the intervention.

CONCLUSIONS — Our findings indicate it is feasible for state-coordinated CVD and diabetes prevention programs to achieve significant weight loss and improve cardiometabolic risk.

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**RESULTS** — Between February 2008 and January 2010, 1,003 participants were enrolled in the intervention; 816 (81%) completed the core and 578 (58%) completed the after core. Mean ± SD attendance was 14.9 ± 1.6 sessions during the core and 3.7 ± 2.1 sessions during the after core. The age of enrolled participants was 52.3 ± 11.6, and 80% (n = 805) were female. Core completers were significantly older than those who did not complete the core and after core completers were significantly older, had a lower BMI at baseline, and were more likely to have diagnosed dyslipidemia at baseline than those completing only the core (supplementary Table, available in an online appendix at http://care.diabetesjournals.org/cgi/content/full/dc10-0862/DC1).

At the conclusion of the core, 45% of completers achieved the 7% weight loss goal, 66% achieved 5% weight loss, and 66% met the physical activity goal. Among the after core completers, 49% met the 7% weight loss goal, 64% achieved 5% weight loss, and 70% achieved the physical activity goal at the end of core.

Core and after core completers achieved significant improvements in weight, systolic and diastolic blood pressure, LDL cholesterol, and fasting blood glucose and a significant reduction in HDL cholesterol at the end of core (Table 1). Significant improvements in HDL cholesterol were seen for those completing the after core. Participants with and without impaired glucose values at baseline achieved significant improvements in weight, blood pressure, LDL cholesterol, and blood glucose values at completion of the core and after core (data not shown).

**CONCLUSIONS** — Core and after core completers achieved significant reductions in weight and improvements in cardiometabolic risk. However, HDL decreased significantly at the end of the core but was followed by a significant increase for those completing the after core. Other studies have found similar results, indicating reductions in HDL during initial weight loss, followed by increased HDL levels during weight maintenance (8,9).

Our lifestyle intervention has a number of strengths, which support translating this research into practice. We included overweight adults with risk factor(s) for CVD or diabetes, rather than only adults with pre-diabetes, an approach supported by recommendations from the American Diabetes Association and American Heart Association, acknowledging the importance of addressing an individual’s global risk for CVD and diabetes (10). We also relied on physician referrals rather than time-consuming screening events. Finally, offering the DPP in groups allowed for greater participant enrollment than a one-on-one intervention. There are several limitations to our study. First, there was a dropout rate of 19 and 42% at the end of the core and after core, respectively. Second, we used a pre- and post-evaluation with no comparison group. Third, we relied on self-reported physical activity and diet measures. Fourth, we were unable to obtain laboratory measures for all participants. Last, our analyses only included participants completing the intervention, which differed from the DPP, in which an intention-to-treat analysis was used.

Coordinated state and national approaches to implement diabetes prevention programs are needed. A recent assessment of Montana DSME programs indicated that these programs have the capacity to provide diabetes prevention services, the primary barrier being lack of reimbursement (11). Other promising models in the U.S. include regional training and implementation centers in Pittsburgh, Pennsylvania, and Indianapolis, Indiana (12,13). Because of the large number of individuals at high risk for diabetes in the U.S., many prevention sites will be needed, including DSME programs and other settings.
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K.K.V. and T.O.H. researched data, contributed to discussion, wrote the manuscript, and reviewed/edited the manuscript. T.S.H. researched data, contributed to discussion, and reviewed/edited the manuscript. M.K.B. and S.D.H. researched data and reviewed/edited the manuscript.

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