



**AADE POSITION STATEMENT:  
Addressing Obesity via Diabetes Self-Management Education and  
Training**

**Introduction**

The significant increase in the prevalence of obesity and diabetes in recent years in the US is a public health policy issue of major importance. Nearly half the adults in Europe and 64.5% of American adults are overweight or obese, and the epidemic is spreading around the world as Western lifestyles are increasingly adopted.<sup>1, 2</sup> The obesity epidemic shows no signs of abating -- nine states had an obesity rate of 30 percent or higher in 2009.<sup>3</sup> Healthy People 2010's goal was that the percentage of obese individuals in the United States not exceed 15%.<sup>4</sup> However, in 2010, the prevalence of obesity was estimated to be 35% in white males, 36% in white females, 33% in black males, and 55% in black females; in 2010 there were 9.3 million more obese adults 20 to 74 years of age than there were in 2000.<sup>5</sup> Obesity is associated with numerous comorbidities, and is also a risk factor for developing type 2 diabetes. A 2009 National Health Interview Survey of 88,129 persons found that 28% of U. S. adults over age 20 were obese, and 9% were diagnosed with diabetes. This represents a 44% increase in obesity and a 76% increase in diabetes since 1997.<sup>6</sup>

Obesity is not exclusively a problem in adults. Childhood obesity also leads to the same comorbidities that are seen in adults. A 2008 study reported the prevalence of obesity in children from 2-5 years was 10.4%, from 6-11, 19.6%, and from 12-19, 18.1%.<sup>7</sup> Childhood obesity has been associated with fatty liver disease, insulin resistance, polycystic ovarian syndrome, hypertension, asthma, and obstructive sleep apnea.<sup>8,9</sup> This continuing epidemic predicts an increase in adults and children with obesity-related comorbidities, which create and will continue to create a burden on the health-care system and on society.<sup>3</sup> Reducing the incidence of obesity may be the most effective health-care cost-savings measure available.<sup>1, 10</sup>

Effective education and counseling by diabetes educators as part of the total health-care team can yield important benefits not only to individuals with, or

at risk for, type 2 diabetes, but may also result in important savings to the health-care system.<sup>11</sup>

## **Background**

Obesity and type 2 diabetes mellitus are linked in several ways. Obesity is involved in the pathologic process that culminates in the development of frank type 2 diabetes,<sup>12,13</sup> and is a severely aggravating factor in the disease itself, as well as a serious risk factor for the cardiovascular disorders that frequently affect persons with diabetes.<sup>14</sup> Epidemiologic evidence for this association is robust. According to a survey by the Centers for Disease Control and Prevention, the prevalence of obesity among persons diagnosed with diabetes was 53% in men and 58% in women. Even higher percentages were classified as overweight – 86.3% in men and 84.2% in women. Overweight was defined as a body-mass index (BMI) of 25.0 to 29.9, and obesity as a BMI  $\geq$  30.<sup>15</sup>

Obesity imposes significant costs to the health-care system, much of which are borne by the public sector.<sup>10</sup> An analysis of drug spending for community-dwelling Medicare beneficiaries found that for seven common disorders, drug spending increased with BMI; for those with diabetes, annual drug spending more than doubled as BMI increased from  $< 18.5$  to  $> 35.0$ .<sup>16</sup> Overall medical spending for obese individuals is approximately 40% higher than for those of normal weight. The annual costs of obesity have risen to almost 10% of all medical spending, and amounted to \$147 billion per year in 2009, approximately half of which was borne by Medicare and Medicaid.<sup>16</sup>

### *Interventions*

The Diabetes Prevention Program (DPP) was a highly successful multicenter clinical trial to evaluate whether a program of lifestyle intervention versus pharmacologic intervention would prevent or delay the onset of diabetes in individuals at risk. All persons in the study were overweight and had impaired glucose tolerance. Two major behavioral interventions, consisting of modest weight loss of approximately 7%, and a minimum of 150 minutes per week of physical activity, similar in intensity to brisk walking, resulted in 58% reduction in the incidence rate of diabetes.<sup>17</sup> The SHIELD (**S**tudy to **H**elp **I**mprove **E**arly evaluation and management of risk factors **L**eading to **D**iabetes) study found that people who saw a dietitian or health educator reported better current health and expectations for future health, made healthier food choices, and were more adherent to prescribed eating plans. The health behaviors evaluated consisted of health knowledge, attitudes, and expectations, physical activity, and dietary choices and weight loss.<sup>19</sup> One other study, Look Ahead, is currently in process and likely to provide additional insights.<sup>20</sup> There are few randomized controlled trials with obese children at risk for type 2 diabetes, however one school based intervention for

diabetes risk reduction studied 4603 multiethnic students aged  $11.3 \pm 0.6$  years, randomizing schools to an intervention or control group. The intervention group showed greater reductions in waist circumference, fasting insulin levels and prevalence of obesity.<sup>20</sup> These and other studies demonstrate that the millions of people in the U. S. and elsewhere, can delay the onset, avoid, or control diabetes and its consequent life-altering comorbidities.

### *Diabetes Self-Management Education and Training*

There is robust evidence supporting education about the management of risk factors leading to diabetes. Self-management training yields positive effects on essential aspects of diabetes self-care and weight control for people with a high BMI. Modest weight loss, defined as a loss of 5% to 10% of baseline weight, has received increasing attention as a new treatment strategy for overweight and obese patients.<sup>13,21</sup> Diabetes educators possess the competencies and have a central and essential role in addressing this problem. The adoption of several of the AADE7 self-care behaviors – e.g., healthy eating, healthy coping, being active, reducing risk – can be beneficial in helping both persons diagnosed with diabetes and those at risk for developing T2DM.<sup>22</sup>

Morbidly obese individuals may require more aggressive intervention. For these individuals, treatment options may also include pharmacologic and surgical interventions.<sup>23</sup> The importance of promoting and maintaining a healthy diet and physical activity in persons with diabetes are paramount, and can be encouraged through education and counseling.<sup>13, 24</sup> However, many persons who have tried weight loss in the past have regained all or most of the weight they lost.<sup>25</sup> Pharmacologic treatments may be a useful adjunct to diet and physical activity, but are not a complete substitute for self-management.<sup>24, 26</sup> Bariatric surgery may result in resolution or improvement in type 2 diabetes, but has been found to require lifelong counseling, monitoring, and nutrient supplementation, in order to prevent nutritional deficiencies or a relapse into diabetes.<sup>26</sup> The diabetes educator helps obese persons understand and navigate these options and be aware of the potential benefits, as well as risks, of each.

### **Role of the Diabetes Educator**

Diabetes educators have for many years worked with patients with diabetes and their families to control diabetes and minimize complications and are well positioned as part of the health-care team to address obesity in persons with diabetes or at risk for diabetes. It is within the scope of the diabetes educator's clinical practice and goal attainment for the American Association of Diabetes Educators (AADE) to address obesity as a component of diabetes self-management. Within this role, diabetes educators recognize overweight and obesity in people with or at risk of diabetes and counsel these individuals

about lifestyle techniques and other approaches for optimizing their health. Diabetes educators also play a vital role in helping to remove/manage the environmental barriers which contribute to the obesity epidemic and to recognize and address health disparities related to diabetes and obesity.

### **Recommendations**

- It is important for the diabetes educator to address obesity as a comorbidity to diabetes and as a part of diabetes self-management and behavior change.
- Educating patients to achieve and maintain a healthy weight should be a priority for all diabetes programs. Diabetes educators address obesity as primary prevention in diabetes and secondary prevention in diabetes self-management because obesity is associated with an increased risk for chronic disorders in addition to diabetes, especially cardiovascular disease.
- At both the individual and the community level, diabetes educators play an important role by teaching the following strategies for obesity prevention and control of obesity:
  1. Promote the availability of affordable, healthy food and beverages;
  2. Support healthy food and beverage choices;
  3. Encourage physical activity or limit sedentary activity among people of all ages;
  4. Create safe communities that support physical activity;
  5. Encourage communities to organize for change.
  6. Work with health insurers and third party payors to recognize the link between obesity and other chronic illnesses, and the need for lifestyle interventions.
  7. Advocate for diabetes educators to be reimbursed for self-management education and training of people with obesity at high risk for developing type 2 diabetes.

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***Criteria for rating evidence and grading recommendations\****

**Level-of- Study Design or Information Type**

**Evidence**

- 1 Large randomized controlled trial (RCT); Multicenter trial; Large meta-analyses with quality rating
- 2 Randomized controlled trial that has some design or methodological flaws; Prospective cohort study; Meta-analyses of cohort study; Case-control study; Quasi-Experimental study (rigorous pre-post with a control group); Systematic review that is well designed
- 3 Methodologically flawed randomized controlled trial; Nonrandomized controlled trial; Observational study; Case series or case report; Review (note Cochrane reviews are systematic reviews that could qualify as Level 2 evidence)
- 4 Expert consensus; Expert opinion based on experience; Theory-driven conclusions; Unproven claims; Experience-based information; Opinion Piece

*\*This is not an exhaustive list – Reviewers will need to use their own judgment at times.*

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