

**Testimony before the Subcommittee on Children and Families
Committee on Health, Education, Labor and Pensions
U.S. Senate**

“Childhood Obesity: The Declining Health of America’s Next Generation”

**Statement of Margaret Grey, DrPH, RN, FAAN
Dean and Annie Goodrich Professor
Yale University School of Nursing
New Haven, Connecticut**

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Thank you for the opportunity to speak with you today about this very serious problem. My name is Margaret Grey, and I am a pediatric nurse practitioner with training in both public health and social psychology. For over 30 years, my area of research and practice has been pediatric diabetes. As you know, and as others on the panel have reiterated, the obesity epidemic in youth threatens not only the future of these children with chronic diseases and a decreased lifetime, this epidemic is multi-faceted and will ultimately affect the workforce and thus the economy.

As a nurse, my interest has always been on prevention – preventing illness and, in the case of obesity and diabetes, preventing complications. The obesity epidemic has led to an entire generation of youth developing type 2 diabetes in childhood, not in adulthood or old age as we are more used to seeing. When I began in this field in the 1970s, we never saw a child with type 2 diabetes. Now, depending on the clinic, up to 50% of new cases of diabetes in children are type 2 diabetes as opposed to type 1 (which was formerly known as juvenile diabetes). While it is most common in teens, in our clinic, we have seen children as young as 5 years old with type 2 diabetes. Worse, it appears that this diabetes is very aggressive and these youth develop the

devastating complications of diabetes – cardiovascular disease, kidney disease, blindness, and amputations – at an early age. Indeed, the longitudinal studies of these youth suggest that while they are in their 20s, they are already having heart attacks and receiving dialysis.

While these physical complications are critically important concerns, there are also complications related to quality of life, depression, and academic achievement. Let me illustrate how serious these complications can be. Quality of life refers to self-reported physical, emotional, social, and school functioning. In 2003, Schwimmer reported that in a comparative study that obese teens have lower quality of life than teens without a chronic condition or those with cancer! This finding was more recently replicated in a community sample. So why does quality of life matter? If childhood overweight and obesity lead to reductions in health-related functioning, then these youth are at risk for psychological, social, and educational complications. I will explain this further.

Related to quality of life is depression. With funding from the National Institutes of Nursing Research, my colleagues and I have been studying approaches to preventing type 2 diabetes in youth at high risk for its development by virtue of overweight or obese status and a family history of type 2 diabetes. In our studies in the New Haven School System middle schools, we have identified that at least 30% of these overweight, high risk youth have levels of depression - Not temporary sadness or the 'blues' - but depression requiring referral and treatment. Those who were depressed had much poorer dietary and activity behaviors, lower self-efficacy, higher Body Mass Index (even among the already overweight), and higher fasting insulin levels (indicating a higher risk for type 2 diabetes). From studies of adults with diabetes, we know that

depression is not uncommon and is associated with poorer physical health as well as poorer self-care. In addition, the obesity epidemic is disproportionately affecting youth of racial and ethnic minorities and of lower income. These youth may be especially susceptible to depression, creating a situation of extremely high risk. We all know that depression is a risk factor for suicide, and as I have often said, as much as we worry about the physical complications of obesity, a child who commits suicide is just as dead as one who suffers from the physical complications.

Our intervention to prevent type 2 diabetes in high risk youth in the middle schools was developed based on my own research with a behavioral intervention called Coping Skills Training and with collaboration of teachers and school nurse practitioners. Early on in this process, we learned that these middle school youth had never learned basic nutrition, so that we had to teach the difference between starches, proteins, and fats. We also learned that many of these families have no access to quality fruits and vegetables in the inner city besides a head of old iceberg lettuce (and we wonder why they look at us funny when we suggest they eat salads every day!). Physical education programs in the schools emphasized sports, so that the youth who needed to participate the most were most often found watching and not playing. There was little to no emphasis on activity that could occur without a team. Finally, many of these children had no access to safe places to be active, nor did they have any confidence that they could change any of their health behaviors.

The program was designed to be taught by the teachers in the 7th grade and included nutrition education, non-sports physical activity, and the behavioral skills (such as problem solving, social

skills, assertiveness, and cognitive behavior modification) necessary to implement what they learned. Over the course of the 12 months of follow-up, we found that the youth who received the entire program, compared to just the nutrition education, had lower BMI, decreased insulin resistance (a marker of risk for diabetes), improved dietary and activity behaviors, decreased depression, and improved confidence in the ability to sustain these behaviors. We are now in the process of testing this program throughout the New Haven middle schools and in several other school districts.

You may wonder if these concerns are confined to racial and ethnic minorities and the inner cities. They are not. While obesity rates in youth average 20%, they are merely higher in these communities. And, our recent studies tell us that concerns about school lunches being high in fat and low in fruits and vegetables are equally of concern in suburban middle class communities. One of our students recently analyzed school lunch menus in 5 Connecticut schools – both inner city and suburban – and found that while portion sizes were appropriate, percentage of calories from fat exceeded guidelines, even before the children went to the vending machines and purchased sodas and fried snacks.

The final topic I will address is the effect of obesity on school performance. A recent review found that overweight and obese youth had poorer school performance than those of normal weight. Obese and overweight youth had lower math and reading scores, were more likely to be held back, missed more days of school, and boys were more likely to expect to quit school. Even more disturbing is the finding that men and women who were obese as teens had significantly fewer years of school by young adulthood. The reasons for this are unclear: the psychosocial

complications of obesity may lead to decreased motivation, but it is also possible that there is a physiologic cause. We know from studies of youth with diabetes that even mildly elevated blood glucose levels are associated with cognitive declines, so it's possible that some of these youth have high glucose levels during the school day and just can't think the same way those of normal weight and glucose levels can.

The ramifications of all of these psychosocial and educational complications of obesity are clear. It's doubly hard to change lifestyle when they are depressed. Depression may lead to suicide. Poor school performance often predicts a lifetime of struggle and lower income, not to mention the potential for absenteeism at work affecting performance and the ability to stay employed.

In this area of work, the need for more research into programs that can prevent obesity before it happens is critical. Once habits are learned and ingrained, it is much more difficult to change behavior. For example, we are beginning a study to help pregnant women lose weight after pregnancy, because we know that children of these women are more likely to be overweight by age 2 than children of women who have lost their pregnancy weight. Such research will take longer than the usual NIH grant of 3-5 years to demonstrate convincingly that this kind of approach will reduce rates of childhood obesity. More studies of community based approaches that reach children and families at a young age in their communities are needed. As important as these school-based studies are, they focus more on treatment of obesity that has already occurred than in prevention. And, I would be remiss if I did not make the case that the funding of NIH and NINR in particular, the only one with prevention and enhancement of self-management of chronic conditions as major focus areas, needs to be increased to allow for more of the studies I have described.

With regard to health policy, I cannot emphasize enough that this generation of youth cannot survive if we continue to pay for the care of their heart attacks, but not for the intensive behavioral care that it will take to reverse this epidemic. I am sure that none of us wishes to be partially responsible for this being the first generation in many years to have a lifespan lower than the previous generation because we didn't act.

Thank you for the invitation and your attention. I look forward to your comments and questions.

References

- Grey, M. & Berry D. (2004). Coping skills training and problem solving in diabetes. *Current Diabetes Reports*, 4(2), 126-133.
- Grey, M., et al. (2004). Preliminary testing of a program to prevent type 2 diabetes among high-risk youth. *Journal of School Health*, 74(1), 10-15.
- Jaser, S. S., Grey, M. et al. (in press). Correlates of depressive symptoms in youth at high risk for type 2 diabetes. *Children's Health Care*.
- Schwimmer, J. B. (2003). Health-related quality of life of severely obese children and adolescents. *Journal of the American Medical Association*, 289, 1813-1819.
- Taras, H., & Potts-Datema, W. (2005). Obesity and student performance at school. *Journal of School Health*, 75(8), 291-295.