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United States Government Accountability Office
Washington, DC 20548

October 7, 2005

Congressional Requesters

Subject: *Childhood Obesity: Most Experts Identified Physical Activity
and the Use of Best Practices as Key to Successful Programs*

In the past 30 years, the number of obese children¹ has increased throughout the United States, leading some policy makers to rank childhood obesity as a critical public health threat. The rate of childhood obesity has more than tripled for children between the ages of 6 and 11 and also increased for children of other ages over the same period.² According to a 2005 Institute of Medicine (IOM) report, there are approximately 9 million children nationwide over the age of 6 who are considered obese.³ An important consequence of childhood obesity is the increasing number of children experiencing illnesses and other health problems associated with obesity, such as hypertension and type II diabetes. The rise in obesity-related health conditions also introduces added economic costs. Between 1979 and 1999, obesity-associated hospital costs for children between the ages of 6 and 17 more than tripled, from \$35 million to \$127 million.⁴ Moreover, because studies suggest that obese children are likely to become overweight or obese adults—particularly if the children are obese during adolescence—the increase in the number of obese children may

¹In this report, the term “obese” refers to children who are considered both overweight and at risk for overweight according to the Centers for Disease Control and Prevention (CDC) standards for child-specific body mass index (BMI) scores, as well as both overweight and obese adults. BMI is an indirect measure of body fat calculated as the ratio of a person’s body weight in kilograms to the square of a person’s height in meters. According to CDC’s 2000 growth charts, children are overweight when their BMI is at or above the 95th percentile for their age and gender, while children between the 85th and 95th percentile are considered at risk of being overweight. BMI for children, also referred to as BMI-for-age, is gender and age specific because the percentage of body fat in children changes as they grow and because body fat in girls and boys differs. Adults are considered overweight when their BMI is between 25.0 and 29.9 and obese when their BMI is 30.0 or above. In addition, in this report, the term “children” refers to anyone under the age of 18.

²These data are for children at or above the 95th percentile of BMI for age and gender. Cynthia L. Ogden, Katherine M. Flegal, Margaret D. Carroll, and Clifford L. Johnson, “Prevalence and Trends in Overweight Among US Children and Adolescents, 1999-2000,” *JAMA*, vol. 288, no. 14 (2002) and Allison A. Hedley, Cynthia L. Ogden, Clifford L. Johnson, Margaret D. Carroll, Lester R. Curtin, and Katherine M. Flegal, “Prevalence of Overweight and Obesity Among US Children, Adolescents, and Adults, 1999-2002,” *JAMA*, vol. 291, no. 23 (2004).

³Institute of Medicine, *Preventing Childhood Obesity: Health in the Balance* (Washington, D.C.: National Academies Press, 2005).

⁴These data are in 2001 dollars and reflect the change from 1979-1981 to 1997-1999. Guijing Wang and William H. Dietz, “Economic Burden of Obesity in Youths Aged 6 to 17 Years: 1979 – 1999,” *Pediatrics*, vol. 109 (2002).

also contribute to health care expenditures when they become adults. Obesity-related health expenditures are estimated to have accounted for more than 25 percent of the growth in health care spending between 1987 and 2001.⁵ In 2000, an estimated \$117 billion was spent for health-related expenditures due to obesity, with direct costs accounting for an estimated \$61 billion. These direct costs accounted for approximately 5 percent of U.S. health expenditures.⁶ Nearly half of all medical spending related to adult obesity is financed by the public sector, through Medicaid and Medicare.⁷ Some federal agencies support efforts to target the issue of childhood obesity, and legislation introduced in the current Congress also focuses on the issue, including the Improved Nutrition and Physical Activity (IMPACT) Act⁸ and the Childhood Obesity Reduction Act.⁹

You asked us to provide information on program strategies and elements experts have identified as likely to contribute to success in addressing childhood obesity. You also asked us to provide information on how those strategies and elements have been implemented. In this report we (1) describe the key strategies identified by experts as most important to include in programs to prevent or reduce childhood obesity; (2) provide examples of how selected programs implemented the key strategies identified and challenges these programs faced; (3) describe the program elements identified by experts as most important to include in programs to prevent or reduce childhood obesity, as well as outcome measures identified as important; and (4) provide examples of how selected programs implemented key elements identified and the challenges these programs faced, as well as examples of possible roles for the federal government. Enclosure I contains the information we provided during our September 8, 2005, briefing of your staff.

The term “program strategy” refers to the issue to be addressed by the program, such as improving nutrition choices and eating habits or increasing physical activity. Components of the program that can affect its success are referred to as “program elements.” For example, conducting a needs assessment prior to implementation, using best practice or evidence-based programs, and conducting program evaluation are all considered program elements.

⁵This information is for adults and reflects inflation adjusted per capita spending. Kenneth E. Thorpe, Curtis S. Florence, David H. Howard, and Peter Joski, “The Impact of Obesity on Rising Medical Spending,” *Health Affairs*, W4-480 (2004).

⁶Eileen Salinsky and Wakina Scott, “Obesity in America: A Growing Threat,” (Washington, D.C.: National Health Policy Forum, July 2003).

⁷Eric A. Finkelstein, Ian C. Fiebelkorn, and Guijing Wang, “National Medical Spending Attributable to Overweight and Obesity: How Much, and Who’s Paying?” *Health Affairs*, W3-219 (2003).

⁸S. 1325, 109th Cong. (2005). As introduced, it would, among other things, direct the Secretary of the Department of Health and Human Services (HHS) to coordinate with appropriate federal agencies as well as with leadership within HHS in awarding competitive grants to plan and implement programs that promote healthy eating behaviors and physical activity to prevent eating disorders, obesity, being overweight, and related serious and chronic medical conditions.

⁹S. 1324, 109th Cong. (2005). As introduced, it would establish a Congressional Council on Childhood Obesity, charged with encouraging elementary and middle schools to develop and implement plans to reduce and prevent obesity, promote improved nutritional choices, and promote increased physical activity among students. The proposed legislation would also establish the National Foundation for the Prevention and Reduction of Childhood Obesity to support and carry out efforts to prevent and reduce childhood obesity through school-based activities.

To address these objectives, we conducted a written survey to identify strategies and elements that experts believe are most important to include when designing or implementing a program to prevent or reduce childhood obesity.¹⁰ We chose to conduct a survey of experts because of the limited availability of information on evaluated programs that describe successful efforts to address childhood obesity. In May 2005, 233 experts in academia and the private sector working in the fields of physical activity, nutrition, and childhood obesity and government officials at the federal, state, and local levels received the survey. (See enc. III for a copy of this survey.) We received 141 completed surveys, 23 survey recipients declined to participate, and 6 surveys were excluded, for an overall response rate of 62 percent. The survey asked respondents to select from among 9 options related to program strategies, 17 options related to program elements, and 7 options related to outcome measures.¹¹ In addition, respondents were offered the option to choose an “other” category for each of these questions, in which they could write in a response. Some respondents selected this “other” category and provided information that may have overlapped with one of the response options offered in the question. We did not re-sort responses into different categories. Respondents were also asked to rank the three strategies and five elements they considered to be most important to include when designing and/or implementing a program to target childhood obesity. We analyzed survey responses, calculating weighted frequencies by assigning a numeric value to weight the choices respondents’ identified as the three most important strategies and the five most important elements. We then calculated an aggregated score based on the weighted frequencies. We also calculated simple frequencies to identify how often experts chose a particular outcome measure as important to the determination of a program’s success.

To obtain examples of how selected programs have implemented the key program strategies and elements identified by experts through our survey, we selected four programs and conducted telephone interviews with program officials. To select the programs, we used specific criteria in order to ensure program variety. These criteria included the program’s funding source, program setting, targeted population, and the program’s strategy.¹² Of the four programs we selected, federal funding was the initial funding source for three programs, and one of these programs continues to have some federal funding. Two of the programs that initially received federal funding are now supported by nonfederal funds, including local funds. One program relies exclusively on private funding. Two of the four programs were school-based while two others were community-based, focusing on communities and including schools. In addition, one program targeted both children and adults, while the other three focused primarily on children. These interviews provided information on the approaches used, problems encountered, and challenges overcome when implementing the key strategies and elements. In addition, we obtained information

¹⁰In our survey, we defined a “program” as an integrated set of planned or sequential strategies, activities, and services that support clearly stated goals.

¹¹The strategies, elements, and outcome measures in the survey were drawn from literature and interviews we conducted with individuals working at federal agencies and national organizations.

¹²We selected programs that focused on different strategies using the strategies most frequently selected on the survey responses received as of May 20, 2005, although we continued to accept surveys through the end of May 2005.

on what program officials perceived as possible federal roles targeting childhood obesity. The information provided reflects the comments of program officials we interviewed and cannot be generalized to all the programs. In addition, the information provided by program officials does not reflect all efforts underway to address childhood obesity or the implementation approaches and challenges faced by other programs. (For additional information on our methodology, see enc. II.)

We did our work from February 2005 through September 2005 in accordance with generally accepted government auditing standards.

Results in Brief

Experts we surveyed identified several key strategies to include in the design or implementation of a program to prevent or reduce childhood obesity. The program strategy identified by experts as most important was “increasing physical activity.” The second-highest-ranked strategy was the “other” category, in which experts wrote in a variety of responses. The number and variety of these write-in responses suggests that, beyond physical activity, there is less consensus on which strategies should be used to target childhood obesity. The strategy of improving children’s nutritional intake was identified as third in importance for programs designed to prevent or reduce childhood obesity by surveyed experts.

Our interviews with officials at four programs provided different examples of implementing the key strategies, including the top-ranked strategy, increasing physical activity. For example, one school-based program provided children with a card that was hole-punched when they walked at recess and which the children could redeem when completed for small prizes and incentives. Another program provided pedometers to encourage walking. Program officials we interviewed also identified multiple challenges to implementing key strategies that included policy concerns, such as a lack of or inconsistent physical education requirements by school districts, and infrastructure concerns, such as no sidewalks.

Experts we surveyed identified several key elements to include in the design or implementation of a program to prevent or reduce childhood obesity. The program element identified as the most important was the use of best practice or evidence-based models. Experts also identified other key elements including the suitability and acceptability of the program to the target community, and sufficient financial and human resources. Responses from surveyed experts indicate that there is no consensus on what outcome measures should be used to determine program success.

Officials we interviewed at four programs provided a variety of examples demonstrating how they implemented the top-ranked program element—use of best practices or evidence-based program models. For example, one program drew best practices from multiple sources, including clinical treatment programs and programs aimed at children of other ages, to guide the development of their prevention program. Program officials we interviewed also identified challenges to implementing key elements that included difficulties in working within school systems and communities to obtain program acceptance, and resource constraints. Program

officials also identified several possible roles for the federal government related to obesity, including supporting and staffing clearinghouses to provide information on best practices.

Agency Comments and Our Evaluation

We received comments on the draft report from the Department of Health and Human Services (HHS). These comments are provided in enclosure VI. HHS and the Department of Agriculture (USDA) also provided technical comments which we incorporated where appropriate. The Department of Education informed us that it had no comments on the draft report.

In its written comments, HHS stated that our findings were inconsistent with IOM's 2005 report, which found that preventing obesity involves both regular physical activity and healthy eating behaviors. We believe that our findings are consistent with IOM's 2005 report. Our survey results show that both physical activity and nutritional strategies are important. Although our surveyed experts ranked physical activity as a leading strategy for programs that address childhood obesity, it is not the sole strategy and our survey results fully support the importance of other strategies, including improving children's nutritional intake. In addition, our report provides illustrative examples of how program officials have implemented both physical activity and nutrition-related strategies. Our title, "Childhood Obesity: Most Experts Identified Physical Activity and the Use of Best Practices as Key to Successful Programs," which HHS suggests overstates the importance of physical activity, is an accurate reflection of the survey responses. Consistent with the IOM report, we provide background on the importance of both sides of the energy balance equation—nutrition and physical activity. Our report is also consistent with IOM's call for evidence-based best practices that could help in setting priorities to address childhood obesity, and the rankings from our surveyed experts suggest priorities based on their experience.

HHS (and USDA in its technical comments) also raised questions about our survey methods, including how survey respondents were selected, how the response options offered to respondents were developed, and how analysis of the many "other" responses written in by respondents was conducted. As we noted in the draft report, we selected our survey respondents by using a systematic approach to review literature, conference proceedings, and hearings within a defined time frame and by developing clear decision rules for selection. Because there is no comprehensive national inventory of childhood obesity programs or experts in the field, a representative sample is not possible. However, our approach was designed to ensure a broad representation across sectors and fields involved in the issue. Both HHS and USDA suggested that we provide additional detail on the survey respondents and we have modified the report to provide information on the affiliations of our survey respondents. As we noted in the draft report, the response categories provided to respondents in the survey were developed based on a review of the literature and interviews, and the survey instrument was reviewed and pretested with each type of respondent included in the sample, and was modified multiple times based on input received before being implemented. HHS (and USDA in its technical comments)

suggested that we should have grouped response categories, including those related to the program strategies and the “other” responses written in by respondents, into broader categories. HHS suggested that such grouping would alter the results, particularly related to the leading program strategy. However, this is not accurate. Grouping the response categories provided in the survey to form broader categories such as physical activity or nutrition would not have changed the results. Physical activity would remain as the leading strategy, with nutrition strategies being important in the rankings, though ranked lower. Furthermore, as we noted in the draft report, we did not re-sort the “other” responses, because respondents deliberately chose to write a response in the “other” category and re-sorting their responses would not have accurately reflected the responses as we received them. Furthermore, re-sorting the responses related to program strategies or “other” to form larger categories would have resulted in a loss of information to the reader about the diversity of the respondents’ views; therefore we chose to provide greater detail. HHS was concerned that the response categories were incomplete. However, the survey made available several areas for respondents to write in responses for an individual question as well as generally, so respondents had ample opportunity to write in additional information. Although HHS stated that we did not mention the use of policy as a strategy to shape food and physical activity environments, this issue is indeed identified as an “other” response that respondents wrote in.

HHS commented that the interviews with officials at four programs are anecdotal and represent a small fraction of respondents who completed surveys, which mischaracterizes our report. HHS’s implication that we selected programs associated with survey respondents is inconsistent with our described methodology. The four programs were identified through interviews and reviews of documents from multiple sources. Furthermore, as the report states, the purpose of the interviews was not to evaluate these specific programs, but to obtain examples that could illustrate concepts in the survey results. As we stated, this was not a generalizable sample.

Finally, HHS suggested that the report incorporate more recent data on prevalence of overweight among children, and provide information on the disparities by race/ethnicity. We modified the report to reflect the updated prevalence data; however, a detailed discussion on variations in the prevalence of obesity among children was not in the scope of our work.

As we agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of this letter until 30 days after the date of this letter. At that time, we will send copies of this letter to the Secretaries of Health and Human Services, Agriculture, and Education, appropriate congressional committees, and other interested parties. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-7101 or bascettac@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in enclosure VII.

A handwritten signature in black ink that reads "Cynthia Bascetta". The signature is written in a cursive style with a large initial 'C'.

Cynthia A. Bascetta
Director, Health Care

List of Requesters

The Honorable Bill Frist
Majority Leader
United States Senate

The Honorable Christopher J. Dodd
Ranking Minority Member
Subcommittee on Education and Early Childhood Development
Committee on Health, Education, Labor, and Pensions
United States Senate

The Honorable Jeff Bingaman
United States Senate

The Honorable Mary Bono
House of Representatives

The Honorable Kay Granger
House of Representatives

The Honorable Nita M. Lowey
House of Representatives

Childhood Obesity: Most Experts Identified Physical Activity and the Use of Best Practices as Key to Successful Programs

Briefing for Staff of Congressional Requesters
September 8, 2005

Introduction

- In the past 30 years, the number of obese children¹ has increased throughout the United States, leading some policy makers to rank childhood obesity as a critical public health threat.
 - The rate of childhood obesity has more than tripled for children between the ages of 6 and 11 and also increased for children of other ages over that 30-year period.²
 - According to a 2005 Institute of Medicine report, nationwide approximately 9 million children over the age of 6 are considered obese.³

¹ In this report, the term "obese" refers to children who are considered both overweight and at risk for overweight according to the Centers for Disease Control and Prevention (CDC) standards for child-specific body mass index (BMI) scores, as well as both overweight and obese adults. BMI is an indirect measure of body fat calculated as the ratio of a person's body weight in kilograms to the square of a person's height in meters. According to CDC's 2000 growth charts, children are overweight when they have a BMI at or above the 95th percentile for their age and gender, while children between the 85th and 95th percentile are considered at risk of being overweight. BMI for children, also referred to as BMI-for-age, is gender and age specific. In addition, in this report, the term "children" refers to anyone under the age of 18.

² These data are for children at or above the 95th percentile of BMI for age and gender. Cynthia L. Ogden, Katherine M. Flegal, Margaret D. Carroll, and Clifford L. Johnson, "Prevalence and Trends in Overweight Among US Children and Adolescents, 1999-2000," *JAMA*, vol. 288, no. 14 (2002) and Allison A. Hedley, Cynthia L. Ogden, Clifford L. Johnson, Margaret D. Carroll, Lester R. Curtin, and Katherine M. Flegal, "Prevalence of Overweight and Obesity Among US Children, Adolescents, and Adults, 1999-2002," *JAMA*, vol. 291, no. 23 (2004).

³ Institute of Medicine, *Preventing Childhood Obesity: Health in the Balance* (Washington, D.C.: National Academies Press, 2005).

Introduction

- The rise in obesity-related health conditions also introduces added economic costs.
 - Between 1979 and 1999, obesity-associated hospital costs for children between the ages of 6 and 17 more than tripled, from \$35 million to \$127 million.⁴
 - Increased numbers of obese children who become obese adults may affect future health expenditures, including Medicaid and potentially Medicare.
 - Obesity-related health expenditures are estimated to have accounted for more than 25 percent of the growth in health care spending between 1987 and 2001.⁵
 - In 2000, an estimated \$117 billion was spent for health-related expenditures due to obesity with \$61 billion in direct costs. These direct costs accounted for approximately 5 percent of U.S. health expenditures.⁶
 - Nearly half of all medical spending related to adult obesity is financed by the public sector, through Medicaid and Medicare.⁷
- Some federal agencies support efforts to target the issue of childhood obesity. Legislation introduced in the current Congress also focuses on the issue, including the Improved Nutrition and Physical Activity Act and the Childhood Obesity Reduction Act.⁸

⁴ The change from 1979-1981 to 1997-1999 in 2001 dollars. Guijing Wang and William H. Dietz, "Economic Burden of Obesity in Youths Aged 6 to 17 Years: 1979-1999," *Pediatrics*, vol. 109 (2002).

⁵ This information is for adults and reflects inflation adjusted per capita spending. Kenneth E. Thorpe, Curtis S. Florence, David H. Howard, and Peter Joski, "The Impact of Obesity on Rising Medical Spending," *Health Affairs*, W4-480 (2004).

⁶ Eileen Salinsky and Wakina Scott, "Obesity in America: A Growing Threat," (Washington, D.C.: National Health Policy Forum, July 2003).

⁷ Eric A. Finkelstein, Ian C. Fiebelkorn, and Guijing Wang, "National Medical Spending Attributable to Overweight and Obesity: How much, and Who's paying?" *Health Affairs*, W3-219 (2003).

⁸ S. 1325, 109th Cong. (2005) and S. 1324, 109th Cong. (2005).

Reporting Objectives

- Describe the key strategies identified by experts as most important to include in programs to prevent or reduce childhood obesity.
 - Provide examples of how selected programs implemented the key strategies identified and challenges these programs faced.
 - Describe the program elements identified by experts as most important to include in programs to prevent or reduce childhood obesity, as well as outcome measures identified as important.
 - Provide examples of how selected programs implemented key elements identified and the challenges those programs faced, as well as examples of possible roles for the federal government.
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Scope and Methodology

- In this report, “program strategies” refers to the issue to be addressed by the program, such as improving nutrition choices and eating habits or increasing physical activity.
 - “Program elements” refers to components of the program that can affect its success. For example, conducting a needs assessment prior to implementation, using best practice or evidence-based programs, and conducting program evaluation are all considered program elements.
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Scope and Methodology

- We surveyed 233 experts in the fields of physical activity, nutrition, and childhood obesity to identify the program strategies, elements, and outcome measures that are, in their view, important to include when designing and/or implementing a program to prevent or reduce childhood obesity.⁹
 - Survey respondents were asked to select from among several options related to program strategies, elements, and outcome measures, and were offered the option to choose an “other” category for each of these questions in which they could write in a response.
 - Some respondents selected the “other” category, providing information that may have overlapped with one of the response options offered in the question, such as physical activity or nutrition intake. Although we reviewed the “other” responses for common issues, we did not re-sort these responses.

⁹ Of these experts, 141 returned completed and usable surveys. See enc. III for a copy of this survey.

Scope and Methodology (cont.)

- Survey respondents were also asked to rank the three strategies and five elements they considered to be most important to include when designing and/or implementing a program to target childhood obesity.
 - Weighted frequencies
 - We assigned a numeric value to weight the choices ranked as the three most important strategies and five most important elements.
 - We then calculated an aggregated score based on the weighted frequencies.
 - Survey respondents were also asked to identify outcome measures they considered important to the determination of a program's success.
 - Frequencies
 - We examined how frequently a particular outcome measure was chosen by experts.
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Scope and Methodology (cont.)

- After surveying experts, we conducted telephone interviews with officials at four selected programs targeting childhood obesity. To select the programs, we used specific criteria to ensure program variety. These criteria included the program’s funding source, program setting, targeted population, and strategy.¹⁰ We asked program officials at each program whether and how they implemented key strategies and program elements identified by surveyed experts.¹¹ Our purpose was to determine the approaches used, challenges encountered, and obstacles overcome. In addition, we obtained information from program officials on what they perceived as possible federal roles related to preventing or reducing childhood obesity.

¹⁰ We selected programs that focused on different strategies using the strategies most frequently selected on the survey responses received as of May 20, 2005, although we continued to accept surveys through the end of May 2005.

¹¹ Throughout this report, the term “surveyed experts” refers to the people who completed the survey. The term “program officials” refers to the people we interviewed at the four selected programs.

Scope and Methodology (cont.)

- Federal funding was the initial funding source for three of the four selected programs, and one of these programs continues to receive some federal funding. The two programs that initially received federal funding are now supported by other, nonfederal funds, including local and private funds. One program we selected relies exclusively on private funding.
 - Two programs were school-based while two others were community-based, focusing on communities and including schools.
 - One program targeted both children and adults, while the other three focused primarily on children.
 - Two programs focused on multiple strategies and two focused on a single strategy.
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Background

Increase in Childhood Obesity

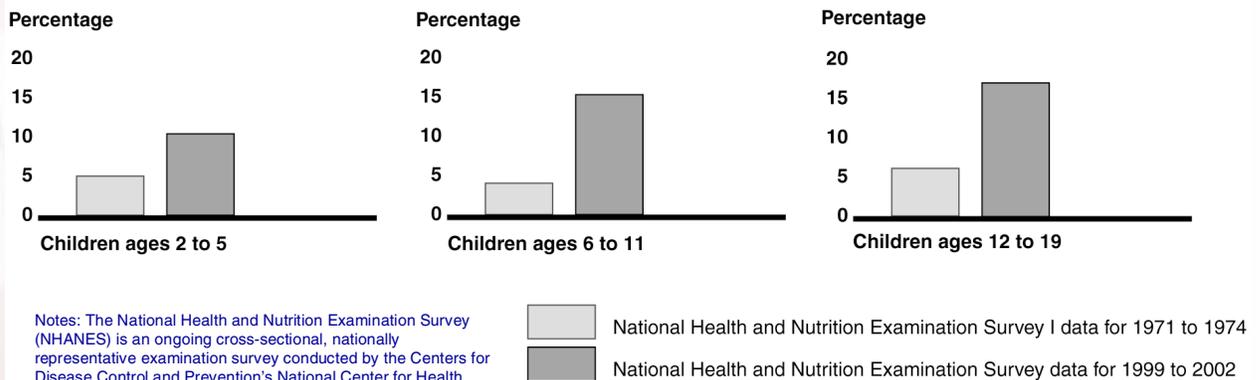
- Between the early 1970s and 2000, the rate of childhood obesity has more than tripled for children between the ages of 6 and 11.¹² (See fig. 1.)
- During that same time period, the rate of childhood obesity more than doubled for both children between the ages of 2 and 5 and between the ages of 12 and 19.

¹² These data are for children at or above the 95th percentile of BMI for age and gender. Ogden et. al., "Prevalence and Trends in Overweight Among US Children and Adolescents, 1999-2000," *JAMA*, vol. 288, no. 14 (2002) and Hedley et al., "Prevalence of Overweight and Obesity Among US Children, Adolescents, and Adults, 1999-2002," *JAMA*, vol. 291, no. 23 (2004).

Background (cont.)

Increase in Childhood Obesity (cont.)

Figure 1: Percent increase in childhood obesity



Notes: The National Health and Nutrition Examination Survey (NHANES) is an ongoing cross-sectional, nationally representative examination survey conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics. The survey collects data on the health of U.S. residents.

^a These data are for children at or above the 95th percentile of BMI for age and gender.

Source: GAO (image) based on Ogden et al., "Prevalence and Trends in Overweight Among US Children and Adolescents, 1999-2000," *JAMA*, vol. 288, no. 14 (2002), and Hedley et al., "Prevalence of Overweight and Obesity Among US Children, Adolescents, and Adults, 1999-2002," *JAMA*, vol. 291, no. 23 (2004).

Background (cont.)

Health Consequences of Childhood Obesity

- Children are experiencing illness and other health problems associated with obesity, including:¹³
 - Type II diabetes
 - Hypertension
- In addition, obesity is associated with other physical, social, and emotional health consequences, including:
 - Sleep apnea
 - Orthopedic problems
 - Depression
 - Negative body image
 - Stigma

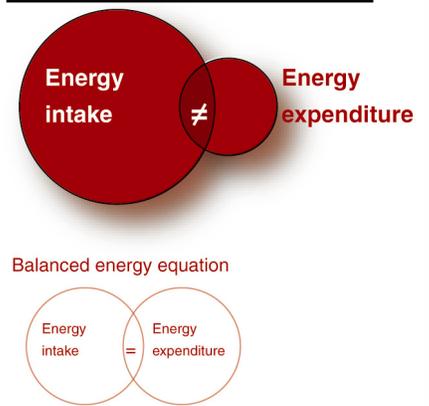
¹³ See, for example, Office of the Surgeon General, *"The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001,"* (Washington, D.C.: 2001) and Salinsky et al., "Obesity in America: A Growing Threat," (Washington, D.C.: National Health Policy Forum, July 2003).

Background (cont.)

Obesity Can Result from an Imbalance in the “Energy Balance Equation”

- At the most basic level, obesity results from an imbalance in what experts refer to as the “energy balance equation.”¹⁴
 - Obesity can result when increased or excess energy intake (calories consumed) is combined with decreased or unchanged energy expenditure (insufficient physical activity). (See fig. 2.)

Figure 2: Imbalanced energy equation



Source: GAO (image).

¹⁴ The energy balance equation is expressed as “energy intake = energy expenditure.” Energy balance is determined by the relationship between energy intake (food/caloric) and energy expenditure (activity/exercise). See, for example, Institute of Medicine, *Preventing Childhood Obesity: Health in the Balance* (Washington, D.C.: National Academies Press, 2005).

Background (cont.)

Factors Contributing to Childhood Obesity

- Each side of the energy balance equation is affected by the complex interaction of social, biological, behavioral, dietary, environmental, and economic factors.
 - For example, children may receive nutrition education and healthy foods while in school, but may not have access to healthy foods in the surrounding community or may lack role models who demonstrate healthy lifestyle choices.
 - Moreover, changes to diet may be insufficient to reduce childhood obesity without a corresponding increase in physical activity.
-

Background (cont.)

Federal Agencies and Others are Participating In Efforts to Prevent and Reduce Childhood Obesity

- At the federal level, the Departments of Health and Human Services, Agriculture, and Education have all supported initiatives that target childhood obesity, in some cases working in partnership with private organizations. These initiatives include research and education, as well as financial and technical support for program implementation.
 - In addition to federal agencies, a variety of private organizations and public-private partnerships have also undertaken efforts to reduce the effects of factors that contribute to childhood obesity. These efforts may target a single issue, such as dietary change, while others may coordinate activities across multiple issues, such as both dietary change and physical activity.
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Background (cont.)

Federal and Private Efforts to Address Childhood Obesity Have Not Been Evaluated

- While a variety of efforts are underway in both the federal and private sectors to address childhood obesity, few programs have undergone the rigorous evaluations needed to definitively identify what types of interventions are successful.
- The Institute of Medicine’s 2005 report on childhood obesity noted that a “robust evidence base” on which interventions have an impact on reducing or preventing childhood obesity is not yet available, but because of the magnitude of the problem, there is an urgent need to take action.¹⁵ The Robert Wood Johnson Foundation has funded the Institute of Medicine to continue working in this area.

¹⁵ Institute of Medicine, *Preventing Childhood Obesity: Health in the Balance* (Washington, D.C.: National Academies Press, 2005).

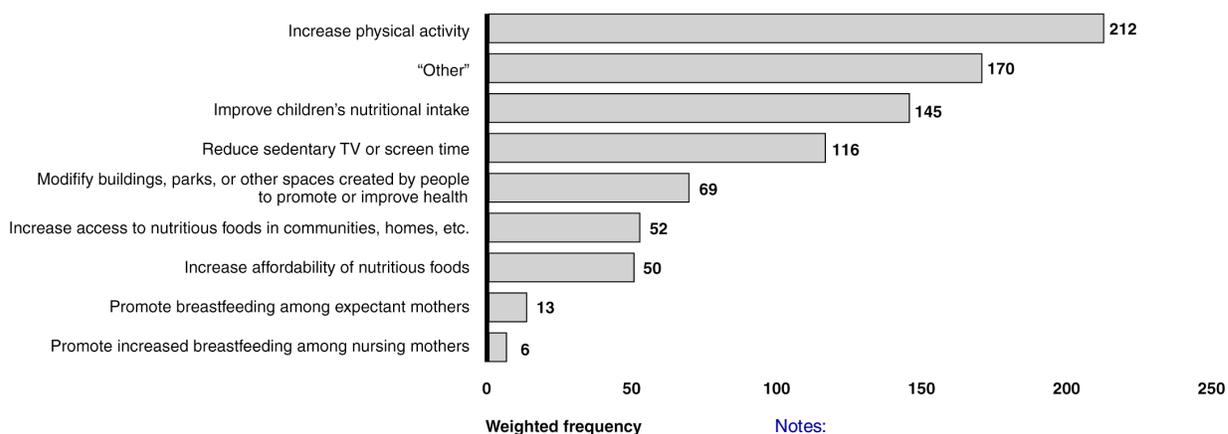
Surveyed Experts Identified Several Key Program Strategies, Including Increasing Physical Activity

- Experts we surveyed identified several key strategies as important to include in programs designed to prevent or reduce childhood obesity.
 - When responses were weighted by importance, increasing physical activity was ranked as the most important strategy.¹⁶ (See fig. 3. See enc. IV for additional data.)

¹⁶ When calculated as straight frequencies, increasing physical activity and "other" were identified most frequently by survey respondents.

Surveyed Experts Identified Several Key Program Strategies, Including Increasing Physical Activity (cont.)

Figure 3: Strategies Identified by Surveyed Experts



Source: GAO Survey on Childhood Obesity, May 2005.

Notes:
Figure is based on weighted data from ranked strategies identified by experts. (See encs. III and IV for more information on survey questions and respondent data.)

"Other" refers to answers written in by survey respondents in the category labeled "other."

Surveyed Experts Identified Several Key Program Strategies, Including Increasing Physical Activity (cont.)

- The second-highest ranked strategy was the “other” category.¹⁷ The number and variety of write-in responses suggests that, beyond physical activity, there is less consensus on which strategies should be used to target childhood obesity.
 - Among the various write-in responses, the most common issues listed were:
 - Involving parents¹⁸
 - General nutrition-related initiatives, such as encouraging water consumption
 - Food policy-related initiatives, such as removing high-sugar and high-fat foods from school vending machines
 - Experts also wrote in strategies related to:
 - Education
 - Physical activity-related initiatives, such as requiring physical activity in schools at all levels
 - Altering child-targeted food marketing/advertising
 - The strategy of improving children's nutritional intake was identified as third in importance for programs designed to prevent or reduce childhood obesity by surveyed experts.
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¹⁷ “Other” refers to answers written in by survey respondents in the category labeled “other.”

¹⁸ By parents, we mean the child’s primary care giver. Parental involvement includes a range of activities such as promoting physical activities for families, improving parent’s fitness levels, promoting authoritative parenting practices regarding foods choices, and educating caregivers on portion sizes.

Program Officials Identified Several Examples of and Challenges to Implementing Experts' Key Strategies

Increasing Physical Activity: Examples

- Several program officials we interviewed identified walking as a means of increasing physical activity.
 - At one school, a teacher started an activity to encourage children to walk at recess. As an incentive, children were given cards, and a hole was punched in the card each time the child completed the school walking course. Students could then redeem the punched cards for small prizes such as colorful pencils or erasers. Another school walking program provided incentives including wrist bands, water bottles, and jump ropes to encourage children to walk at least 5 miles a week.
-

Program Officials Identified Several Examples of and Challenges to Implementing Experts' Key Strategies (cont.)

Increasing Physical Activity: Examples (cont.)

- One program worked with a community to increase children's physical activity by developing a program to encourage children and parents to walk to school. This type of program is commonly referred to as a "walking school bus."
 - Another program provided pedometers to children and adults to encourage walking. In one community involved in this program, this effort resulted in an increased resident demand for places to walk, which in turn resulted in an increase in the number of local walking paths from one to five.
-

Program Officials Identified Several Examples of and Challenges to Implementing Experts' Key Strategies (cont.)

Increasing Physical Activity: Challenges

- Program officials reported that existing community and school infrastructures may present challenges to increasing physical activity, such as no school bicycle racks, no sidewalks, heavy traffic, and unsafe neighborhoods.
 - Officials also reported that physical education policy, which varies by state and local school districts, may also present challenges. Some states do not require physical education for children and others lack physical education specifications defining its frequency and duration.
 - One program official stated that, while there is a state physical education requirement for all schools, schools can receive waivers. In addition, many schools do not have physical education teachers or share physical education teachers with multiple other schools.
-

Program Officials Identified Several Examples of and Challenges to Implementing Experts' Key Strategies (cont.)

Improving Nutritional Intake: Examples

- One program official we interviewed noted that some schools no longer involve food in school-sponsored fund raising events. For example, students could sell Halloween costumes instead of candy to raise money.
 - Another program purchased vending machines that dispense milk—instead of sweetened beverages—for placement in schools. That program also provided coupons for fresh fruits and vegetables that could be redeemed at local grocery stores.
 - Another program provided a salad bar with fresh fruits and vegetables purchased from local farmers as a daily lunch option.
-

Program Officials Identified Several Examples of and Challenges to Implementing Experts' Key Strategies (cont.)

Improving Nutritional Intake: Challenges

- Program officials from a school-based program noted that children received mixed messages, receiving information on healthy lifestyles through their program while still being offered unhealthy food in the school environment.¹⁹
- Program officials we interviewed also expressed concern about the foods provided through the National School Lunch Program. For example, one program official who works for a school district's Food and Nutrition Services told us that meats lower in fat should be available. Another program official with a school-based program noted that schools are not currently reimbursed for bottled water that is served during after-school programs, though they can be reimbursed for fruit beverages.

¹⁹ For additional information on competitive foods and school meals, see GAO, *School Meal Programs: Competitive Foods Are Available in Many Schools; Actions Taken to Restrict Them Differ by State and Locality*, GAO-04-673 (Washington, D.C.: Apr. 23, 2004), GAO, *School Lunch Program: Efforts Needed to Improve Nutrition and Encourage Healthy Eating*, GAO-03-506 (Washington, D.C.: May 9, 2003), and GAO, *School Meal Programs: Competitive Foods Are Widely Available and Generate Substantial Revenues for Schools*, GAO-05-563 (Washington, D.C.: Aug. 2005).

Program Officials Identified Several Examples of and Challenges to Implementing Experts' Key Strategies (cont.)

Improving Nutritional Intake: Challenges (cont.)

- One program official told us school district financial staff resisted altering the bidding process to allow schools to purchase seasonal produce from local farmers.
 - Multiple program officials, including a nutrition specialist employed by a school district's Food and Nutrition Services, told us that preparation of fresh fruits and vegetables is time and labor intensive and requires schools to have a kitchen located at the school.
 - An individual who helped develop a school-based program identified the need to educate food service staff on the preparation of nutritious foods.
 - One program official said people are often confused by information on proper nutrition that seems to change frequently. Because of this, increasing physical activity was an easier strategy to sustain.
-

Surveyed Experts Identified Several Key Program Elements, Including the Use of Best Practices

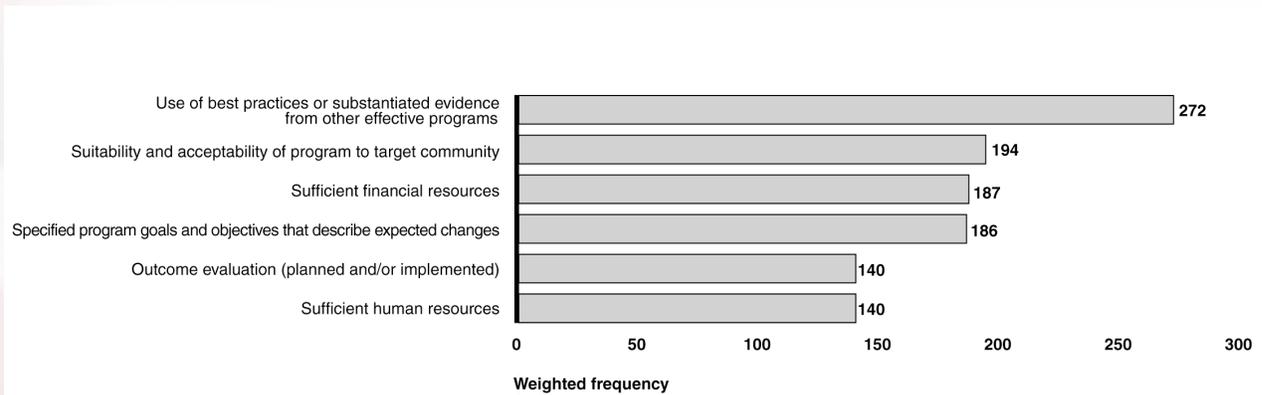
- Experts we surveyed identified several key elements as important to include in programs designed to prevent or reduce childhood obesity.
 - The use of best practices²⁰ was ranked as the most important element by survey respondents when responses were weighted by importance.²¹ (See fig. 4. See enc. IV for additional data.)

²⁰ The survey defined best practices as new lessons learned about effective program activities that have been developed and implemented in the field and have been shown to produce positive outcomes.

²¹ When calculated as straight frequencies, the use of best practices, outcome evaluation, and sufficient financial resources were identified most frequently by survey respondents.

Surveyed Experts Identified Several Key Program Elements, Including the Use of Best Practices (cont.)

Figure 4: Key Elements Identified by Surveyed Experts



Source: GAO Survey on Childhood Obesity, May 2005.

Note: Figure is based on weighted data from ranked elements identified by experts. (See encs. III and IV for more information on survey questions and respondent data.)

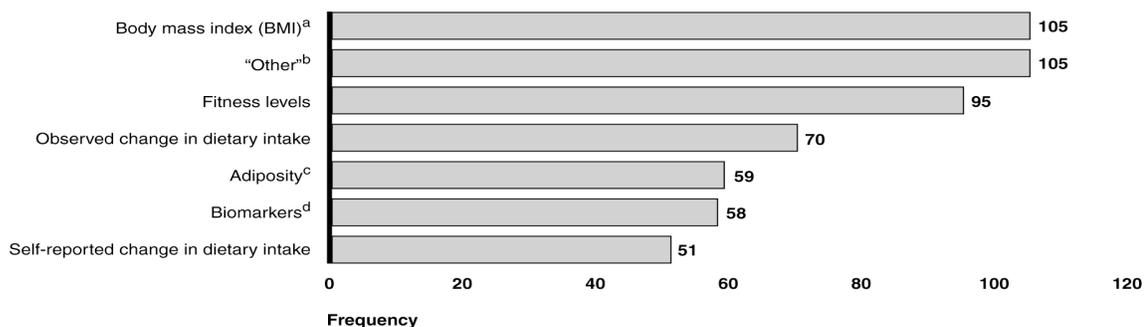
Surveyed Experts Identified Several Key Program Elements, Including the Use of Best Practices (cont.)

Surveyed Experts Varied on How to Measure Outcomes

- In addition to surveying experts on program elements, we also asked them to identify outcome measures that should be used to measure a program’s ability to prevent or reduce childhood obesity. (See fig. 5. See enc. IV for additional data.)
 - Our survey showed agreement among experts that body mass index (BMI) and fitness levels can be used as possible outcome measures. However, a large number also selected “other.” This suggests that, while there was agreement among experts on the importance of using best practices, there is a lack of consensus on how best to measure the success of programs designed to prevent or reduce childhood obesity.
-

Surveyed Experts Identified Several Key Program Elements, Including the Use of Best Practices (cont.)

Figure 5: Outcome Measures Identified by Surveyed Experts



Source: GAO Survey on Childhood Obesity, May 2005.

Note: Figure is based on frequency data from outcome measures identified by experts. (See encs. III and IV for more information on survey questions and respondent data.)

^a Body mass index is an indirect measure of body fat calculated as the ratio of a person's body weight in kilograms to the square of a person's height in meters.

^b "Other" refers to answers written in by survey respondents in the category labeled "other." Examples of "other" measures included waist circumference, psychological measures (e.g., attitudes, self-esteem), and decreased TV viewing.

^c Adiposity refers to excessive body fat.

^d Biomarkers are anatomic, physiologic, biochemical, or molecular parameters associated with the presence and severity of specific disease states. For example, biomarkers for obesity could include insulin levels.

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements

Use of Best Practices: Examples

- Officials from one community-based program obtained information from initiatives in another state and from an international conference. Within their own community, they looked to a program conducted by local police to increase children's physical activity and promote neighborhood safety.
 - Officials from another community-based program drew on information from public health programs and a curriculum created by another program.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Use of Best Practices: Challenges

- In the absence of best practice models for their targeted population, officials from one school-based program reported that they used practices from obesity programs targeting other age groups. In addition, they used information collected through clinical treatment of obese children. The program also drew on theories of health behavior and learning to create the framework for the program.
 - An official from another school-based program focusing on improving children's nutrition told us that, when they started, no best practice models that addressed their specific needs were available. Because of this, they developed their own model. This program is now institutionalized throughout its home school district and has developed materials to help others develop similar programs.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Suitability and Acceptability to Community: Examples

- One program developed broad programmatic goals, then worked with specific communities to develop objectives that targeted the specific needs of those communities.
 - Another program created multiple versions of its educational materials to be sensitive to a community's religious beliefs.
 - A school-based program offered pre-made salads and sold them on lunch carts so that older students who no longer ate in the cafeteria but were still a part of that program's targeted population would participate in the program.
 - To address cultural and language diversity, two programs translated materials into Spanish to reach a broader population.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Suitability and Acceptability to Community: Challenges

- Program officials noted that working within a school system can pose challenges because of
 - The need for programs to be integrated into existing curricula.
 - The need for programs to work within school resource constraints—for example, be low cost and require no additional staff.
 - The need for programs to have school administrators' support in order to operate.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Sufficient Human Resources: Examples

- To address human resource needs, some program officials told us they looked within the program's community to find people to fill key paid and volunteer staff positions.
 - One program hired neighborhood residents to help implement the program.
 - In a school-based program, parents volunteered to clean and prepare the fresh fruits and vegetables served to children. One of these parents was later hired to help facilitate the program at a local school.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Sufficient Human Resources: Challenges

- Some programs identified challenges which, though not specific to programs targeting childhood obesity, make it difficult to ensure sufficient human resources.
 - Officials from one program stated that staffing instability can result from a lack of long-term funding. For example, when paid positions are dependent on unstable funding, staff may leave during the course of the program to accept more secure jobs.
 - Officials from another program acknowledged the difficulty of recruiting volunteers and are trying to work with other organizations with similar interests to pool resources.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Sufficient Financial Resources: Examples

- Officials told us that for a program to be implemented in a school setting, funds often need to be provided to the schools.
 - One program awarded grants to schools to support special projects designed to reach program goals, and also provided reimbursement to schools for data collection activities needed for the program evaluation. Program officials reported that the ability to provide these small grants to a community can generate enthusiasm for the program in that community.
 - Another program official noted the importance of providing funds for teacher training, as well as a small stipend for a program coordinator.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Sufficient Financial Resources: Examples (cont.)

- Officials stated that financial contributions from communities also helped provide sufficient resources to support the programs. For example, in one community, contributions were used to purchase walkie-talkies and handheld traffic signs needed by crosswalk guards for the initiative to promote walking to school.
 - Another program official stated that it is important to partner with organizations in the private sector that will act as “program champions.” Such advocates can often raise funds needed as a catalyst to implement programs.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Sufficient Financial Resources: Challenges

- One program official reported that obtaining funding for program implementation beyond initial research activities can be difficult.
- The uncertainty of future funding was also identified by officials from one program as a challenge to program continuity. Those officials also noted that grant funding needs to be flexible and allow for innovation.

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Specified Program Goals and Objectives: Examples

- Most program officials we spoke with said they developed goals and objectives that described program impact or expected changes. For example, one program developed the following goal, objective, and expected impact:²²
 - Goal—Enhance the well-being of individuals by improving their attitudes and behaviors related to food, physical activity, and body image, and to build communities' capacity to sustain these changes.
 - Objective—Create educational and promotional materials, including a communitywide multimedia campaign, to achieve the program goals.
 - Expected Impact—Positive changes in attitudes toward eating, physical activity, and body image.

²² This program aimed to reduce obesity by focusing actively on prevention and health—rather than simply on weight—at both the individual and community levels.

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Specified Program Goals and Objectives: Challenges

- Officials from one program stated that it is difficult to attribute individual-level change to interventions implemented on a communitywide basis.
 - Officials from another program noted that measuring the result of prevention is also difficult, regardless of whether the intervention is at the individual or community level.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Outcome Evaluation: Examples

- Program officials we interviewed from one school-based program used a randomized control trial design.²³
 - Because this program had been rigorously evaluated, it was selected by a private funder for inclusion as part of a larger program and is currently being disseminated to other schools.
- Program officials we interviewed at other programs had conducted or planned to conduct an outcome evaluation of their programs, using both qualitative and quantitative measures.

²³ In research communities, randomized control trial design is generally considered to be a rigorous evaluation design.

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Outcome Evaluation: Challenges

- One program official expressed an interest in conducting an outcome evaluation, but was unable to find the human and financial resources for such an evaluation.
 - Officials from one program told us that measuring changes in outcomes for individual children during school can be disruptive and found that extensive evaluation can detract from the enthusiasm of participating schools and teachers.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Outcome Evaluation: Challenges (cont.)

- Program officials at a school-based program noted that schools may not have the capability or expertise to conduct outcome evaluations. However, they noted that schools are better able to conduct process evaluations, which provide information on how an intervention is implemented.
 - Officials from one program noted that, because extensive evaluation is costly and labor intensive, once rigorous evaluation of an intervention has been conducted, the program should not be asked frequently to conduct repeated outcome evaluations.
-

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Program Officials Also Commented on Possible Federal Roles in Targeting Childhood Obesity

- In addition to asking officials from four programs about the implementation of key program elements, we also asked them what they considered to be potential roles for the federal government related to childhood obesity.
 - Officials from some programs reported that they believe the federal government has a role in developing and staffing clearinghouses to provide information and materials on programs, and to identify best practices gleaned from other programs.²⁴
 - Officials from one program expressed concern that seeing the effect of a community intervention can take 8 to 10 years, and some current federal grant structures do not allow time to see a program's effect on the targeted population.

²⁴ Some information resources do currently exist, such as Team Nutrition, a Department of Agriculture effort that shares information on school-based nutrition programs. Action for Healthy Kids and Shaping America's Youth, both of which are supported by federal agencies, private organizations, and professional associations, also provide information on programs targeting childhood obesity.

Selected Programs Identified Several Examples of and Challenges to Implementing Experts' Key Elements (cont.)

Program Officials Commented on Potential Federal Role in Targeting Childhood Obesity (cont.)

- Officials from one program told us that the federal government should provide communities with information but allow them the flexibility to determine what will work in their localities.
 - Program officials also noted that they see a role for the federal government in regulating children's exposure to food advertising and marketing.
-

Concluding Observations

Our survey indicates that experts consider increasing physical activity as a leading strategy for programs aimed at preventing or reducing childhood obesity. Nutritional intake was also identified as one of the key strategies, though experts ranked strategies that targeted physical activity higher than strategies that targeted nutrition. One possible explanation for this was offered by a program official who said that increasing physical activity was an easier strategy to sustain because people were often confused by information on nutritional issues.

Beyond increasing physical activity, the responses from experts were quite varied and covered many different strategies, although some of these may have overlapped with other strategy response categories on the survey. The number and variety of write-in responses suggests a lack of agreement on which strategies are important to include in programs addressing childhood obesity.

Concluding Observations (cont.)

With regard to program elements, experts ranked developing best practices or evidence-based program models highest—even higher than funding support. The need for this element was noted in several ways.

- Our survey revealed little consensus on how to measure program outcomes. We believe this lack of consensus on outcome measures may limit the ability to determine best practices. Body mass index was the outcome measure most often identified by experts, but an equal number of experts offered other measures, such as psychological measures and decreased television viewing.
 - Some program officials noted the lack of program models (models in general as well as models for specific age groups) as a barrier when initially establishing a program.
-

Concluding Observations (cont.)

- Although some information resources exist, some program officials suggested that the federal government provide information and materials on programs through mechanisms such as the development of a clearinghouse and the maintenance of a database on best practices.

Scope and Methodology

To identify strategies and elements that experts believe are most important to include when designing and/or implementing a program to prevent or reduce childhood obesity, we conducted a written survey of experts in academia and the private sector working in the fields of physical activity, nutrition, and childhood obesity. We also surveyed government officials at the federal, state, and local levels. We chose to conduct a survey of experts because of the limited availability of information on evaluated programs that describe successful efforts to address childhood obesity. Because there is no comprehensive inventory of childhood obesity experts, we used a systematic approach to identify survey participants. We reviewed both national conference proceedings and testimony from congressional hearings focused on childhood obesity held from January 2004 through February 2005 to identify speakers focused on this issue. Using multiple databases, including Medline, BIOSIS, Cumulative Index to Nursing and Allied Health Literature, and the Education Resources Information Center, we conducted a review of literature published from January 2003 through February 2005 related to preventing or reducing childhood obesity in the United States, identifying primary authors of relevant literature as expert contacts for the survey. To identify survey respondents from associations and foundations in the private sector, we conducted an internet search to identify relevant organizations and, when necessary, contacted the organization's communications department or federal affairs office to identify an appropriate contact. To identify survey respondents at federal agencies, we relied on conversations with the Departments of Health and Human Services, Education, and Agriculture and also identified respondents from some federal agencies through our review of literature and conferences. In addition to these sources, we also identified possible respondents from interviews conducted when collecting background information and through past GAO work. We compiled a list of 222 experts to receive the survey: 95 from academia, 46 from the public sector (federal, state, or local government), 38 from foundations and associations, and 43 from the private sector.

The survey was conducted during May 2005. We pretested the survey with four experts representing academia, the public sector, foundations and associations, and the private sector, and modified the survey based on their responses. The survey was sent via e-mail as both a Microsoft Word document and Acrobat Adobe PDF to experts, who were given the option to return the survey by e-mail or by fax. For surveys that were marked "undeliverable," correct e-mail addresses were obtained via telephone and the survey was sent again. If a correct e-mail address could not be obtained, the expert was dropped from our expert pool. Experts who did not respond by the deadline were followed up with by both phone and e-mail, up to three times.

The survey was sent to 233 experts—the 222 we identified and an additional 11 experts to whom the survey was forwarded by the original recipients. Of these, 23 declined to participate. In addition, 6 survey recipients were excluded because they could not be reached or returned unusable surveys. We received 141 completed surveys for a 62 percent overall response rate. Of the respondents completing the survey, 57 were from academia, 36 were from the public sector (federal, state, or local government), 25 were from foundations and associations, and 23 were from the

private sector. The survey asked respondents to select from among 9 options related to program strategies, 17 options related to elements, and 7 options related to outcome measures.¹ (See enc. III for a copy of this survey.) In addition, respondents were offered the option to choose an “other” category for each of these questions, in which they could write in a response. Some respondents selected this “other” category and provided information that may have overlapped with one of the response options offered in the question. In order to ensure an accurate reflection of survey responses, we did not re-sort responses into a different category.

Respondents were asked to rank the three strategies they considered to be most important to include when designing and/or implementing a program to target childhood obesity, as well as the five elements they considered to be most important. Respondents were also asked to identify outcome measures they considered important to determine program success. In addition to the questions related to program strategies, elements, and outcome measures, survey respondents were also asked to provide information on programs they considered to be successful or have shown promise in preventing or reducing childhood obesity and their affiliation, if any, with these programs. When completing the survey, respondents represented themselves, not the organization or agency they were affiliated with, and were allowed the option of remaining anonymous.

We analyzed survey responses, calculating weighted frequencies of the program strategies and elements by assigning a numeric value to weight the choices respondents identified as the three most important strategies and the five most important elements.² We then calculated an aggregated score based on the weighted frequencies. We also calculated simple frequencies to identify how often experts chose a particular outcome measure as important to the determination of a program’s success. We reviewed the information written-in by respondents in the “other” category related to program strategies and elements to examine common issues. In addition, we used the information provided by survey respondents to compile a list of programs they considered to be successful or showing promise in preventing or reducing childhood obesity. (See enc. V.)

To illustrate how selected programs have implemented the key program strategies and elements identified through our survey, we conducted interviews with officials from four selected programs. To select these programs, we developed a list of possible programs based on interviews and documents.³ We looked for programs that focused on the strategies most frequently selected from among the strategies listed in the survey, based on results received as of May 20, 2005.⁴ We sorted programs according to program setting, funding source, target population, and whether the

¹The strategies, elements, and outcome measures in the survey were drawn from literature and interviews we conducted with individuals working at federal agencies and national organizations.

²The numeric values assigned to the strategies identified as most, second most, and third most important were 3 points, 2 points, and 1 point, respectively. The numeric values assigned to the elements identified as most, second most, third most, fourth most, and fifth most important were 5 points, 4 points, 3 points, 2 points, and 1 point, respectively.

³We did not include programs that were focused exclusively on media or educational campaigns.

⁴We continued to accept surveys through the end of May 2005.

program targeted one or multiple strategies. We then selected four programs to represent variety within these characteristics. Of the four programs selected, federal funding was the initial funding source for three programs, and one of these programs continues to have some federal funding. Two of the programs that initially received federal funding are now supported by nonfederal funds, including local funds. One program relies exclusively on private funding. Two programs focus exclusively on one program strategy—one on physical activity, the other on nutrition—while the other two programs focus on multiple strategies, including both physical activity and nutrition. Two of the four programs were school-based while two others were community-based, focusing on communities and including schools. In addition, one program targeted both children and adults, while the other three focused primarily on children. We spoke with multiple individuals connected with each program, including one person who served the role of program manager.

We conducted telephone interviews with program officials from each of the four selected programs using a structured protocol. In addition, we reviewed written materials on each of the selected programs. We asked program officials for examples of how they implemented the key strategies and elements identified through our survey and for information on the problems encountered and challenges overcome during implementation. In addition, we obtained information on what they perceived as possible federal roles related to childhood obesity. The information provided reflects the comments of program officials we interviewed and cannot be generalized to all programs. In addition, the information provided by program officials does not reflect all the efforts underway to address childhood obesity or the implementation approaches and challenges faced by other programs.

As part of our review, we also interviewed officials from the Departments of Health and Human Services, Agriculture, and Education to obtain background information about federally funded programs and initiatives, including both current and completed programs. In addition, we reviewed documentation provided by these agencies regarding their efforts to reduce childhood obesity. We also interviewed officials and reviewed documents from the Institute of Medicine and the Robert Wood Johnson Foundation to obtain background information on childhood obesity and their efforts to address the issue.

Survey on Childhood Obesity



**U.S. Government Accountability Office
Questionnaire about Programs to Prevent or Reduce
Childhood Obesity**

Purpose: The U.S. Government Accountability Office (GAO), an audit and evaluation agency for Congress, has received a bi-partisan request from members of the Senate and House of Representatives to conduct a study to identify the strategies and elements of successful or promising programs intended to prevent or reduce childhood obesity. Part of our work has involved identifying leading experts in the areas of physical activity, nutrition research, or childhood obesity prevention. We have identified you to be such an expert.

This survey was sent to you because your insights about relevant strategies and program elements could be helpful to us in our work. For purposes of this survey, we define a program as an integrated set of planned and sequential strategies, activities, and services that support clearly stated goals. Your responses to this survey will help inform our work and make significant contributions to our report to Congress. If you feel you are not the best person in your organization to respond, please forward this e-mail to the person who could most appropriately respond, or provide us with their name and contact information.

We realize that there are many demands on your time, and have worked to ensure that the burden of answering the questionnaire is kept to a minimum. Based on our pre-tests of this questionnaire, we anticipate that it will take less than 15 minutes to complete.

Completion Date: Due to the short time frame of our study, we will need your responses by Monday, May 16, 2005, or sooner if possible.

GAO Contact: Please return the survey via e-mail to ObesitySurvey@gao.gov. If you would prefer to return the survey via fax, please fax it to (202) 512-2502 or (202) 512-2514. If you have questions, please contact Emily Gamble Gardiner at gardinere@gao.gov or (202) 512-4469. You can also contact Nkeruka Okonmah at okonmah@gao.gov or (202) 512-3010 or Kimberly Scott at scottka@gao.gov or (202) 512-4845.

IMPORTANT:

We have included versions of this survey in both Microsoft Word and Adobe Acrobat (PDF). Please use whichever version is easiest for you.

If you choose to use the PDF version of the survey, please note that the freely available Acrobat Reader program will allow you to view and enter information into this form. However, **you WILL NOT be able to save the completed survey** if you do not have the complete Adobe Acrobat program. If this is the case, once completed, please print the survey and return it to us at one of the two fax numbers listed above.

I. Program Strategies and Program Elements

1. From the list below, please identify the strategies you think are most important to include when designing and/or implementing a program to prevent or reduce childhood obesity. (Please check all that apply and add any strategies not on the list.)

- A. Reduce sedentary television or screen time
- B. Promote breastfeeding among expectant mothers
- C. Promote increased breastfeeding among nursing mothers
- D. Increase physical activity
- E. Increase financial affordability of nutritious foods
- F. Increase physical access to nutritious foods
- G. Improve children's nutritional intake
- H. Change the built environment (i.e., buildings, roads, parks or other spaces created or modified by people) to promote or improve health
- I. Do not know
- J. Other (Please specify. Limited to 150 characters, including spaces):

- K. Other (Please specify. Limited to 150 characters, including spaces):

- L. Other (Please specify. Limited to 150 characters, including spaces):

2. If you identified more than one strategy in question 1 above, please rank the three you believe are most important by placing the designation letter listed above—A through L—in the appropriate box below. (If you identified only one option in question 1, please skip to question 3.)

- Most important strategy:
- Second most important strategy:
- Third most important strategy:

3. From the list below, please identify the program elements you think are most important to include when designing and/or implementing a program to prevent or reduce childhood obesity. See attachment A for more detailed definitions of the terms. (Please check all that apply and add any elements not on the list.)

- A. Assessment of gathered information to outline need for intervention
- B. Specified target population for the designed program
- C. Specified goals/objectives/outcomes that describe impact/expected changes
- D. Use of best practices or substantiated evidence from other effective programs
- E. Suitability and acceptability of program to target community
- F. Determination of most appropriate setting for program to occur
- G. Integration of program into existing efforts
- H. Training of staff/volunteers to implement program
- I. Collaboration with others in community for buy-in and ownership
- J. Presence of program advocate(s) to effect change
- K. Sufficient financial resources
- L. Sufficient human resources
- M. Sufficient program duration to monitor change over time
- N. Process Evaluation (planned and/or implemented)
- O. Outcome Evaluation (planned and/or implemented)
- P. Program sustainability
- Q. Do not know

R. Other (Please specify. Limited to 150 characters, including spaces):

S. Other (Please specify. Limited to 150 characters, including spaces):

T. Other (Please specify. Limited to 150 characters, including spaces):

4. If you identified more than one element in question 3 above, please rank the five program elements in order of importance by placing the designation letter—A through T—in the appropriate box below. (If you identified only one option in question 3, please skip to question 5.)

- Most important element:
- Second most important element:
- Third most important element:
- Fourth most important element:
- Fifth most important element:

5. **Based on your experience, what important elements are frequently missing from programs designed to prevent or reduce childhood obesity?** *(You may include program elements listed above or add others. Limited to 500 characters, including spaces.)*

II. Program Outcomes

6. **What specific outcomes should be used to measure the ability of programs to prevent or reduce childhood obesity?** *(Please check all that apply and add any not on the list.)*

- Body Mass Index (BMI)
- Fitness levels (e.g. run-walk times, aerobic capacity)
- Adiposity
- Biomarkers (e.g., glucose levels, lipids)
- Self-reported change in dietary intake
- Observed change in dietary intake
- Do not know
- Other *(Please specify. Limited to 150 characters, including spaces.):*

- Other *(Please specify. Limited to 150 characters, including spaces.):*

- Other *(Please specify. Limited to 150 characters, including spaces.):*

III. Specific Program Information

7. **Please provide the names and locations of no more than 5 specific programs you think have been successful or have shown promise in preventing or reducing childhood obesity.** *(Please include both completed and ongoing programs. Limited to 500 characters, including spaces.)*

8. Are you affiliated with any of these programs you listed in question 7? (Please note, we may be interested in further examination of some of these programs.)

Yes→ Please specify which program(s):
(Limited to 150 characters, including spaces)

No

9. If you have any comments that you believe would help GAO inform Congress about programs to prevent or reduce childhood obesity, or if you would like to elaborate on any of your answers, please use the space below. (Limited to 500 characters, including spaces.)

10. From the list below, please identify your primary affiliation. (Please check only one option.)

- | | |
|--|---|
| <input type="checkbox"/> Academia / Research | <input type="checkbox"/> Foundation / Association |
| <input type="checkbox"/> Federal Government | <input type="checkbox"/> Local / State Government |
| <input type="checkbox"/> Private sector | <input type="checkbox"/> Other |

11. We may be interested in contacting you for more information on the programs you identified in question 7. If you are willing, please provide your contact information below.

Respondent Name: _____

Title: _____

Organization: _____

Telephone number: _____

12. Would you like to receive a copy of this report when it is completed?

Yes

If you would like the report to be e-mailed to an address other than the one this survey was sent to, please provide that address below:

No

Thank you again for your assistance in our work.

ATTACHMENT A: DEFINITIONS OF PROGRAM ELEMENT TERMS *

- A. Needs/resource assessment** – Systematic gathering of information to identify the conditions and resources of the target population or community that underlie the need for the intervention or program proposed.
- B. Target population** – The population the program is designed to influence. This may include both primary and secondary populations—i.e., children and their parents or guardians.
- C. Clear goals/objectives/outcomes** – Broad statements that describe the impacts of what the program is intended to accomplish, including specific changes—objectives or outcomes—expected in the target population(s) as a result of the program interventions.
- D. a. Best practice** – New ideas or lessons learned about effective program activities that have been developed and implemented in the field and have been shown to produce positive outcomes.
b. Evidence-based program – Inclusion of elements from other programs that have been proven to be effective. For this classification, a program has been shown, through scientific study, to produce consistently positive results.
- E. “Community fit”** – Assurance that the program elements are suitable for, and likely to be accepted by, the target community—i.e., examine elements that would serve as positive reinforcements in an inner-city community for their suitability in a program targeted for a rural community.
- F. Intervention setting** – Assurance that the program is appropriate for the target setting—i.e., schools, homes, community centers, etc.
- G. Integration of program into existing efforts** – Assurance that the program does not duplicate similar efforts already underway in the target population(s) or target community.
- H. Training** – Assurance that staff and volunteers receive appropriate training to develop the skills necessary to perform tasks, appropriately implement the program, and address problems that arise.
- I. Collaboration** – Development of relationships with community organizations by sharing resources, risks, responsibilities, and rewards to enhance the program’s capacity and increase community buy-in.
- J. Program advocate(s)** – The presence of a program champion(s), such as a program director or coordinator, who guides day-to-day operations, fosters communication, and serves as a base of support for staff, and who can influence program decisions and effect change. This could also include someone outside the organization who provides support in the community.

- K. Sufficient financial resources** – Assurance that there is sufficient funding to design and implement the program as it is intended.
- L. Sufficient human resources** – Assurance that there are sufficient qualified staff or volunteers and that they have the support, motivation, skills, experience, and credentials needed to do their job, as well as adequate time to do their work.
- M. Sufficient duration to monitor change over time** – Assurance that the program implementation is sufficiently long to enable a demonstration of change over time.
- N. Process evaluation** – A planned and/or conducted assessment of implemented activities, the quality of the implementation, and the strengths and weaknesses of the implementation (the “process”).
- O. Outcome evaluation** – A planned and/or conducted evaluation, using predetermined criteria (e.g. BMI), that documents whether, and to what degree, the program caused an improvement among participants.
- P. Program Sustainability** – Assurance that a program has the resources to continue after the initial funding has ended.

* Sources of program element definitions were adapted from multiple sources, including the RAND Corporation, *Getting to Outcomes 2004: Accountability Through Methods and Tools for Planning, Implementation, and Evaluation*, (Santa Monica, CA: 2004).

**Data on Program Strategies, Elements, and Outcome Measures Obtained from
GAO Survey on Childhood Obesity**

Table 1: Frequencies and Weighted Frequencies of Each Program Strategy

| Possible survey response | Survey respondent rankings | |
|---|-----------------------------------|---------------------------|
| | Frequency of each strategy | Weighted frequency |
| Reduce sedentary television or screen time | 118 | 116 |
| Promote breastfeeding among expectant mothers | 52 | 13 |
| Promoted increased breastfeeding among nursing mothers | 35 | 6 |
| Increase physical activity | 133 | 212 |
| Increase financial affordability of nutritious foods | 81 | 50 |
| Increase access to nutritious foods in communities, homes, etc. | 96 | 52 |
| Improve children's nutritional intake | 106 | 145 |
| Modified buildings, parks, or other spaces created by people to promote or improve health | 101 | 69 |
| Do not know | 2 | 0 |
| Other ^a | 174 | 170 |

Source: GAO Survey on Childhood Obesity.

Note: To determine frequencies, we examined how frequently a particular program strategy was chosen by experts. To determine the weighted frequencies, we assigned a numeric value to weight the choices ranked as the three most important strategies, then calculated an aggregated score based on the weighted frequencies. The numeric value for the strategy identified as most, second most, and third most important were 3 points, 2 points, and 1 point, respectively.

^aThese data include all "other" responses written-in for this question.

Table 2: Frequencies and Weighted Frequencies of Each Program Element

| Possible survey response | Survey respondent rankings | |
|---|----------------------------|--------------------|
| | Frequency of each element | Weighted frequency |
| Assessment of gathered information to outline need for intervention | 42 | 80 |
| Specified target population for the designed program | 74 | 94 |
| Specified program goals and objectives that describe impact/expected changes | 97 | 186 |
| Use of best practices or substantiated evidence from other effective programs | 105 | 272 |
| Suitability and acceptability of program to target community | 100 | 194 |
| Determination of most appropriate setting for program to occur | 39 | 9 |
| Integration of program into existing efforts | 64 | 62 |
| Training of staff/volunteers to implement program | 71 | 49 |
| Collaboration with others in community for buy-in and ownership | 85 | 110 |
| Presence of program advocate(s) to effect change | 52 | 52 |
| Sufficient financial resources | 107 | 187 |
| Sufficient human resources | 103 | 140 |
| Sufficient program duration to monitor change over time | 93 | 99 |
| Process evaluation (planned and/or implemented) | 78 | 44 |
| Outcome evaluation (planned and/or implemented) | 106 | 140 |
| Program sustainability | 89 | 122 |
| Do not know | 3 | 4 |
| Other ^a | 44 | 103 |

Source: GAO Survey on Childhood Obesity.

Note: To determine frequencies, we examined how frequently a particular element was chosen by experts. To determine the weighted frequencies, we assigned a numeric value to weight the choices ranked as the five most important elements, then calculated an aggregated score based on the weighted frequencies. The numeric value for the element identified as most, second most, third most, fourth most, and fifth most important were 5 points, 4 points, 3 points, 2 points, and 1 point, respectively.

^aThese data include all "other" responses written-in for this question.

Table 3: Frequencies of Outcome Measures

| Possible survey response | Survey respondent rankings |
|--|--|
| | Frequency of each outcome measure |
| Body mass index (BMI) | 105 |
| Fitness levels (e.g. run-walk times, aerobic capacity) | 95 |
| Adiposity | 59 |
| Biomarkers (e.g., glucose levels, lipids) | 58 |
| Self-reported change in dietary intake | 51 |
| Observed change in dietary intake | 70 |
| Do not know | 2 |
| Other ^a | 105 |

Source: GAO Survey on Childhood Obesity.

Note: To determine frequencies, we examined how often a particular outcome measure was chosen by experts.

^aThese data include all “other” responses written-in for this question.

Programs Identified by Surveyed Experts

In a written survey conducted by GAO, experts were asked to provide the names and locations of programs they believe have been successful or shown promise in preventing or reducing childhood obesity.¹ GAO did not independently evaluate the programs listed.²

- Action for Healthy Kids, Skokie, Illinois
- America On the Move, Boston, Massachusetts
- Apache Healthy Stores Project, New Mexico
- Balance First,™ Ontario, Canada
- Be Active North Carolina
- Bienestar, California
- Bright Bodies Weight Management, Yale University School of Medicine - New Haven, Connecticut
- Brocodile the Crocodile, New York
- California Project LEAN (Leaders Encouraging Activity and Nutrition)
- Cardiovascular Health in Children and Youth Study (CHIC), University of North Carolina – Chapel Hill, North Carolina
- Cartographic Modeling Laboratory, University of Pennsylvania - Philadelphia, Pennsylvania
- *Childhood Weight Control Program, University of Buffalo - Buffalo, New York
- Children's Optimal Weight for Life Program, Children's Hospital Boston, Massachusetts
- Color Me Healthy, North Carolina
- Consortium to Lower Obesity in Chicago Children (CLOCC), Illinois
- Department of Defense's (DOD) Fresh Produce Program
- Department of Education's Carol M. White Physical Education Program
- Department of Health and Human Services (HHS) - National Institutes of Health's (NIH) Coronary Artery Risk Development in Young Adults (CARDIA) study
- Eat Well & Keep Moving, Baltimore City Public Schools and Harvard School of Public Health – Boston, Massachusetts
- Farm Fresh Choice, University of California – Berkeley, California
- Farm to Schools Program, Occidental College - Los Angeles, California
- Fitkid Project, Medical College of Georgia – Augusta, Georgia
- FoodChange, New York, New York
- Healthy Children Healthy Futures
- Healthy Living in the Pacific Islands, Honolulu, Hawaii
- Healthy Start
- HHS – Centers for Disease Control and Prevention (CDC) School Health Index
- HHS – CDC's VERB™

¹Program locations are not always included. Programs noted with an asterisk (*) were mentioned by at least 10 experts.

²Program names that could not be verified through an internet search were excluded from this list. In addition, general listings of states, school names, school districts, and hospitals were excluded.

- *HHS – NIH’s Child and Adolescent Trial for Cardiovascular Health (CATCH)
- HHS – NIH’s Girls Health Enrichment Multisite Study (GEMS)
- HHS – NIH and the National Recreational and Park Association’s Hearts N’ Parks
- HHS and Environmental Protection Agency’s National Children’s Study
- HHS’s Head Start
- HHS’s Steps to a HealthierUS
- Hip-Hop to Health Program, Chicago, Illinois
- Ho-Chunk Community Development Corporation, Walthill, Nebraska
- incentaHEALTH Program, Denver, Colorado
- Kaiser Permanente’s Kid Shape®, Oakland, California
- LEAP: The Live, Eat and Play Study, Royal Children’s Hospital, Melbourne, Australia
- M-SPAN (Middle-School Physical Activity and Nutrition), San Diego State University, California
- New Moves, University of Minnesota – Minneapolis, Minnesota
- NikeGO / PE2GO, Beaverton, Oregon
- Northwest Schools Obesity Prevention Consortium, University of Washington - Seattle, Washington
- Nutrition and Physical Activity Self Assessment for Child Care (NAP SACC), University of North Carolina - Chapel Hill, North Carolina
- Nutrition Education Aimed at Toddlers (NEAT), Michigan State University - East Lansing, Michigan
- Packard Pediatric Weight Control Program, Lucile Packard Children’s Hospital at Stanford, California
- Pathways study, University of New Mexico - Albuquerque, New Mexico
- Physical Best Program, Champaign, Illinois
- *Planet Health, Harvard Prevention Research Center - Boston, Massachusetts
- Positive Coaching Alliance, Stanford University, California
- *Reducing Television Viewing to Prevent Childhood Obesity study, Stanford Prevention Research Center
- Shape Up America!
- SHAPEDOWN®, University of California – San Francisco, California
- SPARK, San Diego, California
- Strategies for Metropolitan Atlanta’s Regional Transportation and Air Quality, Atlanta, Georgia
- Student Centered Web-Based Communities: Multi-Disciplinary Approach for Adolescent Obesity Prevention, Purdue University - West Lafayette, Indiana
- TACOS Study, University of Minnesota - Minneapolis, Minnesota
- Take 10!,™ Atlanta, Georgia
- The California Endowment’s Healthy Eating, Active Communities Initiative
- The Food Trust, Philadelphia, Pennsylvania
- The National Black Church Initiative, Washington, D.C.
- The Nutrition and Fitness for Life Program, Boston Medical Center, Massachusetts

- The Robert Wood Johnson Foundation's Active Living by Design / Healthy Eating by Design, University of North Carolina - Chapel Hill, North Carolina
- U Move with the Starzz, University of Utah - Salt Lake City, Utah
- U.S. Department of Transportation's Safe Routes to School
- United Way, Alexandria, Virginia
- Urban Nutrition Initiative (UNI), University of Pennsylvania - Philadelphia, Pennsylvania
- US Department of Agriculture's (USDA) Breastfeeding Promotion and Support
- USDA's Community Supported Agriculture
- USDA's Eat Smart. Play Hard.™
- USDA's Fit WIC
- USDA's Food Stamp Program
- USDA's Fruit and Vegetable Pilot Program
- USDA's Loving Support Makes Breastfeeding Work
- USDA's National School Lunch Program
- USDA's Team Nutrition
- Weight Management Program, Louisiana State University - Baton Rouge, Louisiana
- What's for Lunch? program, Brookline, Massachusetts
- WIN the Rockies (Wellness IN the Rockies)
- YMCA Activate America

Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D.C. 20201

SEP 22 2005

Ms. Cynthia A. Bascetta
Director, Health Care
U.S. Government Accountability Office
Washington, DC 20548

Dear Ms. Bascetta:

Enclosed are the Department's comments on the U.S. Government Accountability Office's (GAO's) draft correspondence entitled, "CHILDHOOD OBESITY: Most Experts Identified Physical Activity and the Use of Best Practices as Key to Successful Programs" (GAO-05-950R). These comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

The Department provided several technical comments directly to your staff.

The Department appreciates the opportunity to comment on this draft report before its publication.

Sincerely,

Daniel R. Levinson

Daniel R. Levinson
Inspector General

Enclosure

The Office of Inspector General (OIG) is transmitting the Department's response to this draft report in our capacity as the Department's designated focal point and coordinator for U.S. Government Accountability Office reports. OIG has not conducted an independent assessment of these comments and therefore expresses no opinion on them.

Now GAO-06-127R.

**COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES
ON THE U.S. GOVERNMENT ACCOUNTABILITY OFFICE'S DRAFT
CORRESPONDENCE ENTITLED, "CHILDHOOD OBESITY: MOST EXPERTS
IDENTIFIED PHYSICAL ACTIVITY AND THE USE OF BEST PRACTICES AS
KEY TO SUCCESSFUL PROGRAMS" (GAO-05-950R)**

The Department of Health and Human Services (HHS) appreciates the opportunity to review the U.S. Government Accountability Office's (GAO's) draft correspondence. Comments focus primarily on concerns regarding the survey methodology and the absence of published and widely recognized scientific evidence in the findings of the report.

The draft presents findings that are inconsistent with the 2005 Institute of Medicine (IOM) report, *Preventing Childhood Obesity*. IOM appointed a 19-member multidisciplinary committee with expertise in child health and development, obesity, nutrition, physical activity, economics, education, public policy, and public health to address the charge. Information was gathered through 6 meetings, a literature review, and commissioned papers over a 24-month study period. The major findings from this process noted "preventing obesity involves healthful eating behaviors and regular physical activity with the goal of achieving and maintaining energy balance at a healthy weight." Although GAO references the IOM report, the recommendations or findings of IOM are not explicitly included in the draft. Because the IOM committee was charged with developing a prevention-focused action plan to decrease the prevalence of obesity in children and youth in the United States, including identifying promising approaches for prevention efforts, this seems to be a missed opportunity.

The finding in the draft regarding physical activity suggests that childhood obesity is only a physical inactivity problem; it is not. HHS concurs with the IOM report that preventing obesity involves both healthful eating behaviors and regular physical activity. Therefore, HHS's efforts to address obesity reflect a balanced approach (i.e., nutrition and physical activity) to prevent and control childhood obesity. Presently, the draft obscures the importance of nutrition in preventing obesity. The draft title also suggests that increasing physical activity is far more important than any other strategy, and the survey data do not support this conclusion. HHS suggests that GAO should consider how the categories for the multiple response options in the survey were developed and how they may have biased the findings. Also, the document does not mention the use of policy as a strategy to shape food and physical activity environments. For example, evidence shows that marketing affects food choices and influences dietary habits, with subsequent implications for weight gain and obesity.

HHS has other concerns regarding GAO's methodology and conclusions, and suggests that analysis of the "other" category could be improved. The list of strategies includes one goal and two methods related to nutrition; these are all interrelated and may logically be counted together in the analysis. The three strategies "improve children's nutritional intake," "increase access to nutritious foods," and "increase affordability of nutritious foods" are methods to improve nutritional intake. If the survey responses for these three

strategies were grouped, the total number of responses for nutrition would be greater than the number for physical activity, whether frequencies or weighted frequencies are used. Thus, the survey data do not support the draft's strong emphasis on physical activity as far more important than nutrition or several other strategies.

In addition, the fact that this category for program strategies ranked number 2 in terms of "consensus" leads to additional concerns about the appropriateness of the list of options provided. The survey response options included a mix of specific strategies (i.e., breast feeding) and general strategies (i.e., increasing physical activity and improving children's nutritional intake). The respondents did not have the option to select the combination of increasing physical activity and having healthy eating habits as a solution. In addition, several key strategies were excluded from the list of response options (e.g., increasing time children spend in moderate or vigorous physical activity, taking physical education classes, increasing intake of fruits and vegetables, decreasing portion sizes, altering child-targeted food marketing/advertising). Therefore, it could be useful to resort the "other" responses into the remaining categories.

The draft does not indicate to whom the survey was initially sent (only the type of organization) nor how the sample was identified. This brings into question whether the survey respondents were truly representative of most experts. The draft describes how the respondents were chosen and states that they were experts in physical activity and nutrition; however, the draft does not indicate the background of the respondents. HHS suggests that the final product should delineate the positions of the 141 respondents used in the analysis (i.e., how many were from academia, Government, private sector) and include criteria for determining their expertise. This would allow the reader to better understand the survey results.

Despite the fact that the draft stresses the need for evidence-based practices, it includes information which may be considered anecdotal, such as information from interviews of program officials from the four selected programs. Only 4 programs out of the 141 completed surveys were considered for the final analysis, which is less than .03 percent representation. This substantial limitation may bias the report, and it should be included in the final product so that findings can be interpreted correctly and used accordingly.

The draft cites the 1999-2000 data on the prevalence of overweight. HHS suggests that GAO use the 1999-2002 prevalence data from the 2004 *JAMA* article: Hedley et al. Prevalence of Overweight and Obesity Among US Children, Adolescents, and Adults, 1999-2002. *JAMA*. Jun 2004;291(23):2847-2850. In addition, the report should describe the disparities in overweight prevalence by race/ethnicity as documented in the *JAMA* article.

Overweight Prevalence Among Youth Ages 12-19, By Sex and Ethnicity, 1999-2002

| Sex | Non-Hispanic White | Non-Hispanic Black | Mexican American |
|--------|--------------------|--------------------|------------------|
| Male | 14.6% | 18.7% | 24.7% |
| Female | 12.7% | 23.6% | 19.9% |

GAO Contact and Staff Acknowledgments

GAO Contact

Cynthia A. Bascetta, (202) 512-7101 or bascettac@gao.gov

Acknowledgments

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