



Summary

The nation's growing recognition of the obesity crisis as a major public health concern for our children and youth has led to an array of diverse efforts aimed at increasing physical activity and promoting healthful eating. These efforts, however, generally remain fragmented and small-scale. Further, there is a lack of systematic tracking and evaluation of childhood obesity prevention interventions. When compared to the strong commitment and heavy infusion of governmental and private-sector resources devoted to other possible major public health concerns, such as infectious disease outbreaks or bioterrorism events, there is a marked underinvestment in the prevention of childhood obesity and related chronic diseases.

Addressing the childhood obesity epidemic is a collective responsibility involving multiple stakeholders and different sectors—including the federal government, state and local governments, communities, schools, industry, media, and families. This was a clear message from the 2005 Institute of Medicine (IOM) report, *Preventing Childhood Obesity: Health in the Balance*.

Following the release of the *Health in the Balance* report, The Robert Wood Johnson Foundation asked the IOM to assess progress in

childhood obesity prevention actions across a variety of sectors and also to engage in a dissemination effort that would promote the implementation of the 2005 report's findings and recommendations through three regional symposia. The dual purpose of convening each symposium was to galvanize childhood obesity prevention efforts among local, state, and national decision makers, community and school leaders, health care providers, public health professionals, and grassroots community-based organizations, as well as to apprise the committee of the experiences and insights of the broad variety of partnerships and activities related to preventing childhood obesity throughout the nation.

To respond to this task, the IOM appointed the Committee on Progress in Preventing Childhood Obesity, comprised of 13 experts in diverse disciplines including nutrition, physical activity, obesity prevention, pediatrics, family medicine, public health, public policy, health education and promotion, community development and mobilization, private-sector initiatives, behavioral epidemiology, and program evaluation. The committee obtained information through a comprehensive literature review, three regional symposia, and two public workshops.

The three regional symposia were held in Wichita, Kansas, Atlanta, Georgia, and Irvine, California, and served to inform the committee about ongoing and innovative promising practices and evaluation approaches that are being used to address the problem and assess the effectiveness of childhood obesity prevention efforts. The crosscutting themes that emerged from all three symposia to support childhood obesity prevention efforts were to forge strategic partnerships, educate stakeholders, increase resources, and empower local schools, communities, and neighborhoods.

This report, *Progress in Preventing Childhood Obesity: How Do We Measure Up?*, offers four distinct contributions to the childhood obesity discourse. It summarizes the findings of the three regional symposia; provides an evaluation framework that stakeholders can use to assess progress for a range of childhood obesity prevention efforts across different sectors and settings; measures progress for specific recommendations in the *Health in the Balance* report; and offers new recommendations for leadership and commitment to childhood obesity prevention efforts including an expansion of the nation's capacity and action in implementing, evaluating, and monitoring childhood obesity prevention initiatives and interventions.

The challenge presented in this report is to take the next steps toward developing a robust evidence base for effective childhood obesity pre-

vention interventions and practices. Given the numerous changes being implemented throughout the nation to improve the dietary quality and extent of physical activity for children and youth, an overarching assessment of progress in preventing childhood obesity necessitates both the tracking of trends across the nation and a more detailed examination of lessons learned through the evaluations of relevant interventions, policies, and programs. Evaluations produce information or evidence that can be used to improve a policy, program, or an intervention in its original setting; refine those that need restructuring and adaptation to different settings and contexts; and revise or discontinue those efforts found to be ineffective. Evaluation is central to identifying and disseminating effective initiatives—whether they are national or local programs, large- or small-scale efforts.

EVALUATION FRAMEWORK

The committee uses the term *evaluation* to represent the systematic assessment of the quality and effectiveness of a policy, program, or initiative. It is an effort to determine whether and how an intervention has important and consequential outcomes. Many types of evaluations can contribute to the knowledge base by identifying promising practices and helping to establish causal relationships between interventions and various outcomes. Evaluation can also enhance our understanding of the intrinsic quality of the intervention and of the critical context where factors can moderate or mediate an intervention's effect in particular ways. The committee emphasizes that program evaluations of varying scope and size, at all levels and within and across all sectors, play a vital role in addressing the childhood obesity epidemic. Evaluation fosters collective learning, supports accountability and responsibility, reduces uncertainty, guides improvements and innovations in policies and programs, determines cost-effectiveness, and helps to leverage change in society.

Evaluations are conducted for multiple stakeholders and the findings broadly shared and disseminated. These audiences include policy makers, funders, and other elected and appointed decision makers; program developers and administrators; program managers and staff; and program participants, their families, and communities. Moreover, these diverse evaluation audiences tend to value evaluation for different reasons. The committee emphasizes the need for a collective commitment to evaluation by those responsible for funding, planning, implementing, and monitoring childhood obesity prevention efforts.

Although resources are limited, evaluation should be incorporated as an essential component of the program planning and implementation process rather than as an optional activity. Government agencies, foundations, and other funders of childhood obesity programs and interventions should incorporate evaluation requirements, as is current practice by many agencies and organizations. Similarly, program planners and those who implement policy changes should view evaluation as an integral part of their efforts. If something is valuable enough to invest time, energy, and resources, then it is also worthy of the investment necessary to carefully document the success of the effort.

All childhood obesity prevention policies and interventions deserve some type of evaluation. Evaluations can range in scope and complexity from comparisons of pre- and post-intervention counts of the number of individuals participating in a program to methodologically sophisticated evaluations with comparison groups and research designs. All types of evaluation can make an important contribution to the evidence base upon which to design policies, programs, and interventions.

The translation of evaluation and research findings into promising practices constitutes the primary means for accelerating national efforts to reverse the childhood obesity epidemic. Since the need for effective evaluation is ongoing, both the capacity and quality of evaluation will be positively influenced by a steadfast national commitment to support obesity prevention efforts and the rapid translation and dissemination of evaluation and research findings—across the geographical landscape—to stakeholders involved in obesity prevention efforts in states and communities. Further, the social and cultural diversity within the United States precludes assumptions about the transferability of interventions from one sub-population to another and should therefore be assessed.

Changing stakeholder perceptions about evaluation—from considering it a daunting task of questionable value to a manageable and highly useful endeavor to inform their efforts—can be facilitated by considering four key evaluation questions to guide childhood obesity prevention policies, programs, and interventions (Box S-1). Although these questions are relevant to obesity prevention strategies and actions across all sectors, not every evaluation can be expected to address all of the questions. Rather, the relevance of the four evaluation questions depends on the type of obesity prevention intervention and the available evaluation resources and technical expertise.

BOX S-1
Questions to Guide Childhood Obesity Prevention
Policies and Interventions

1. How does the action contribute to preventing childhood obesity? What are the rationale and supporting evidence for this particular action as a viable obesity prevention strategy, particularly in a specific context? How well is the planned action or intervention matched to the specific setting or population being served?
2. What are the quality and the reach or power of the action *as designed*?
3. How well is the action carried out? What are the quality and the reach or power of the action *as implemented*?
4. What difference did the action make in terms of increasing the availability of foods and beverages that contribute to a healthful diet, opportunities for physical activity, other indicators of a healthful diet and physical activity, and improving health outcomes for children and youth?

Experienced evaluators have long acknowledged the importance of identifying and understanding the key contextual factors (e.g., environmental, cultural, normative, and behavioral) that influence the potential impact of an intervention. The evaluation framework that the committee developed offers a depiction of the resources and inputs, strategies and actions, and a range of outcomes that are important to childhood obesity prevention. All are amenable to documentation, measurement, and evaluation (Figure S-1).

The evaluation outcomes selected will depend on the nature of the intervention, the timeline of the program or intervention, and the resources available to program implementers to collect, analyze, and interpret outcomes data. The timeline of the intervention often determines whether the evaluation can assess progress toward a short-term outcome (e.g., increasing participation in an after-school intramural sports team), an intermediate-term outcome (e.g., changes to the built environment that promote regular physical activity for children and youth) or a long-term outcome (e.g., a reduction in BMI levels of children participating in a new program). Outcomes can also be categorized based on the nature of the change: (1) structural, institutional, and systemic outcomes; (2) envi-

ronmental outcomes; (3) population or individual-level cognitive and social outcomes; (4) behavioral outcomes (e.g., dietary and physical activity behaviors); and (5) health outcomes (Figure S-1).

The evaluation framework also illustrates the range of inputs and outcomes while giving careful consideration to the following factors:

- The interconnections and quality of interactions within and among the multiple sectors involved in childhood obesity prevention initiatives.
- The adequacy of support and resources for policies and programs.
- The contextual appropriateness, relevance, and potential power of the planned policy, intervention, or action.
- The multiple outcomes (e.g., structural, institutional, systemic, environmental, behavioral for individuals and the population, and health outcomes).
- The potential impact of interventions on adverse or unanticipated outcomes, such as stigmatization.
- The indicators used to assess progress made toward each outcome. Selecting the best indicators will depend on the purpose for which they are intended and the resources available to program staff to collect, analyze, and interpret relevant data.

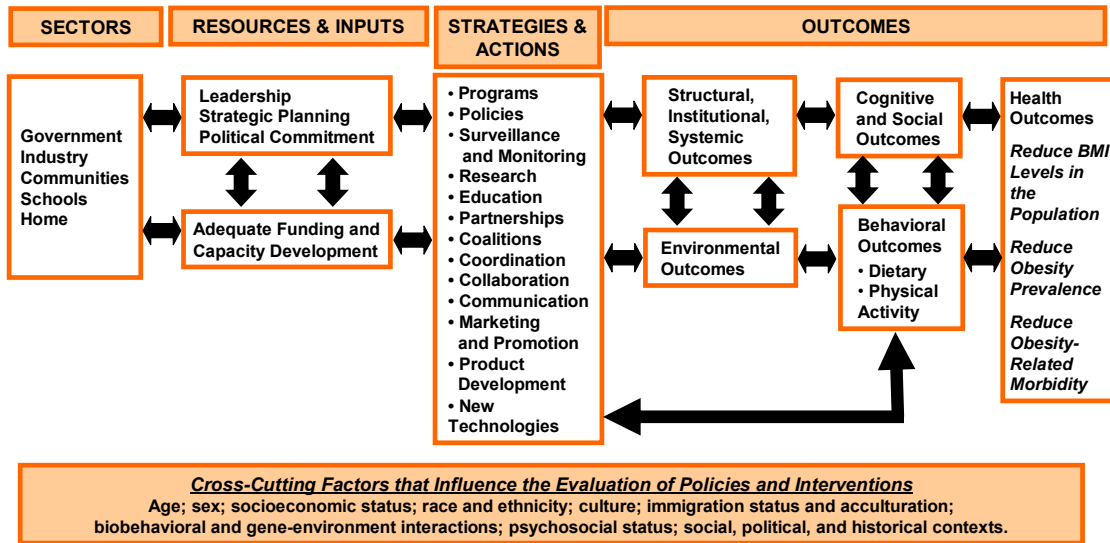


FIGURE S-1 Evaluation framework for childhood obesity prevention policies and interventions.

A variety of crosscutting factors influence program experiences and the evaluation process, thereby requiring consideration at every stage of the evaluation framework for both individuals and populations. These include age, sex, socioeconomic status, and race/ethnicity; culture, immigration status and acculturation; bio-behavioral and gene-environment interactions; psychosocial status; and social, political, and historical contexts. Context refers to the set of factors or circumstances that surround a situation or event and give meaning to its interpretation. All of these factors should be taken into account when designing, monitoring, and evaluating obesity prevention initiatives as depicted in Figure S-1.

The committee has identified several relevant criteria that can be used to judge the design and quality of interventions and encourages funders and program planners to consider the following actions:

- Include diverse perspectives and attend to the sub-populations in the greatest need of prevention actions— particularly underserved, low-income, and high-risk populations that experience health disparities;
- Use relevant empirical evidence relevant to the specific context when designing and implementing the intervention;
- Identify similar or potentially synergistic efforts and make important cross-sectoral linkages and sustained collaborations; and
- Link structural, environmental, and behavioral changes in individuals and populations relevant to childhood obesity prevention.

CONCLUSIONS

The committee developed five broad conclusions (Box S-2) based on its assessment of progress in preventing childhood obesity that serve as the foundation for the report's recommendations and implementation actions discussed in the report.

BOX S-2
Conclusions

1. The country is beginning to recognize that childhood obesity is a serious public health problem that increases morbidity and mortality and that has substantial economic and social costs. However, the current level of investment by the public and private sectors still does not match the extent of the problem.
2. Government, industry, communities, schools, and families are responding to the childhood obesity epidemic by implementing a variety of policies, programs, and other interventions. All people bring strong values and beliefs to obesity-related issues, and evidence-based approaches are needed to guide the nation's collective actions in the response.
3. Current data and evidence are inadequate to comprehensively assess progress in preventing childhood obesity across the United States. Although the best available evidence should be used to develop an immediate response to the childhood obesity epidemic, a more robust evidence base should be developed that identifies promising practices so that such interventions can be scaled-up and supported in diverse settings.
4. Evaluation serves to foster collective learning, accountability, responsibility, and cost-effectiveness to guide improvements in childhood obesity prevention policies and programs. Multiple sectors and stakeholders should commit adequate resources to conduct evaluations. Surveillance, monitoring, and research are fundamental components of childhood obesity prevention evaluation efforts.
5. Multiple sectors and stakeholders should conduct evaluations of different types and at different levels to assess and stimulate progress over the short term, intermediate term, and long term to reverse the childhood obesity trend and improve the health of the nation's children and youth.

RECOMMENDATIONS FOR ASSESSING PROGRESS

Reflective of the collective and interrelated responsibility of multiple sectors and stakeholders to create a healthy marketplace and media environment, healthy communities, healthy school environments, and healthy home environments, the committee developed four recommendations for this report. The committee's recommendations are relevant across five major sectors—government, industry, communities, schools, and home. The first recommendation underscores the importance of promoting leadership and commitment to treat childhood obesity prevention as an urgent national priority. The remaining three recommendations serve as the basis for evaluation activities within and across the sectors,

accounting for interdependencies and dynamic changes that will affect obesity prevention actions. More details about the implementation of the recommendations for each sector are discussed throughout the report and collated in Appendix E.

These recommendations collectively call our attention to the urgent need to provide more and better information to improve peoples' lives through evaluation. Stakeholders in each sector are urged to identify and mobilize adequate resources for the evaluation of obesity prevention interventions for children and youth. The recommendations also advance an evaluation process that meaningfully engages diverse stakeholders in the evaluation design and process and that legitimizes the multiplicity of stakeholder perspectives, notably including program recipients along with funders, administrators, and professional staff.

There will be a greater likelihood of success when public, private, and voluntary organizations purposefully combine their respective resources, strengths, and comparative advantages to ensure a coordinated and sustained long-term effort. Evaluations will contribute to building a strong and diverse evidence base upon which promising and best practices can be identified, scaled up, and institutionalized across different settings and sectors.

Recommendation 1: Government, industry, communities, schools, and families should demonstrate leadership and commitment by mobilizing the resources required to identify, implement, evaluate, and disseminate effective policies and interventions that support childhood obesity prevention goals.

- Federal, state, and local governments should each establish a high-level task force to identify priorities for action, coordinate public-sector efforts, and establish effective interdepartmental collaborations.
- Industry should use the full range of available resources and tools to create, support, and sustain consumer demand for products and opportunities that support healthy lifestyles including healthful diets and regular physical activity.
- Community stakeholders should establish and strengthen the local policies, coalitions, and collaborations needed to create and sustain healthy communities.
- School boards, administrators, and staff should elevate the priority that is placed on creating and sustaining a healthy school en-

vironment and advance school policies and programs that support this priority.

- Families, parents, and caregivers should commit to promoting healthful eating and regular physical activity to create a healthy home environment.

Recommendation 2: Policy makers, program planners, program implementers, and other interested stakeholders—within and across relevant sectors—should evaluate all childhood obesity prevention efforts, strengthen the evaluation capacity, and develop quality interventions that take into account diverse perspectives, that use culturally relevant approaches, and that meet the needs of diverse populations and contexts.

- Federal and state government departments and agencies should consistently evaluate the effects of all actions taken to prevent childhood obesity and strengthen the evaluation capacity, paying particular attention to culturally relevant evaluation approaches.
- Industry should partner with government, academic institutions, and other interested stakeholders to undertake evaluations to assess its progress in preventing childhood obesity and promoting healthy lifestyles.
- Community stakeholders should strengthen evaluation efforts at the local level by partnering with government agencies, foundations, and academic institutions to develop, implement, and support evaluation opportunities and community-academic partnerships.
- Schools and school districts should strengthen evaluation efforts by partnering with state and federal agencies, foundations, and academic institutions to develop, implement, and support evaluations of all school-based programs.
- Parents and caregivers, as the policy makers in the household, should assess their family's progress in achieving positive lifestyle changes.

Recommendation 3: Government, industry, communities, and schools should expand or develop relevant surveillance and monitoring systems and, as applicable, should engage in research to examine the impact of childhood obesity prevention policies, interventions, and actions on relevant outcomes, paying particular

attention to the unique needs of diverse groups and high-risk populations. Additionally, parents and caregivers should monitor changes in their family's food, beverage, and physical activity choices and their progress toward healthier lifestyles.

- Government at all levels should develop new surveillance systems or enhance existing surveillance systems to monitor relevant outcomes and trends and should increase funding for obesity prevention research.
- The U.S. Congress, in consultation with industry and other relevant stakeholders, should appropriate adequate funds to support independent and periodic evaluations of industry's efforts to promote healthier lifestyles.
- Community stakeholders and relevant partners should expand the capacity for local-level surveillance and applied research and should develop tools for community self-assessment to support childhood obesity prevention efforts.
- Schools and school districts should conduct self-assessments to enhance and sustain a healthy school environment, and mechanisms for examining links between changes in the school environment and behavioral and health outcomes should be explored.
- Parents and caregivers should monitor their families' lifestyle changes; and government, foundations, and industry should support applied research that examines family interventions in real-world settings.

Recommendation 4: Government, industry, communities, schools, and families should foster information-sharing activities and disseminate evaluation and research findings through diverse communication channels and media to actively promote the use and scaling up of effective childhood obesity prevention policies and interventions.

- Government at all levels should commit to the long-term support and dissemination of childhood obesity prevention policies and interventions that have been proven to be effective.
- Industry should collaborate with the public sector and other relevant stakeholders to develop a mechanism for sharing pro-

prietary data and a sustainable funding strategy that can inform and support childhood obesity prevention interventions.

- Community stakeholders should partner with foundations, government agencies, faith-based organizations, and youth-related organizations to publish and widely disseminate the evaluation results of community-based childhood obesity prevention efforts.
- Schools should partner with government, professional associations, academic institutions, parent-teacher organizations, foundations, communities, and the media to publish and widely disseminate the evaluation results of school-based childhood obesity prevention efforts and related materials and methods.
- Government (federal, state, and local), communities, families, and the media should disseminate and widely promote the evaluation results of effective family- and home-based childhood obesity prevention efforts.

NEXT STEPS

Each of the recommendations is further expanded in the report, in which the committee recommends specific implementation actions that should be taken by government, industry, communities, schools, and parents and caregivers at home to ensure that there are adequate resources and a focus on strengthening the evaluation of childhood obesity prevention policies and interventions. Given the range of actions that are needed to move forward in preventing childhood obesity, the committee has identified immediate next steps—deemed as essential priority actions in the near future.

Government

Federal, state, and local governments are actively engaged in childhood obesity prevention efforts. However, as noted above, the level of funding and resources invested in these efforts and their evaluation is not commensurate with the seriousness of this public health problem. Government at all levels should provide coordinated leadership for the prevention of obesity in children and youth. A critical next step for the federal government is to establish a high-level task force on childhood obesity prevention as recommended in the *Health in the Balance* report

(IOM, 2005), and underscored in this report. The committee recommends that the President request the Secretary of the Department of Health and Human Services (DHHS) convene this high-level task force and include the Secretaries or senior officials from DHHS, Agriculture, Education, Transportation, Housing and Urban Development, Interior, Defense, and other relevant agencies. The purpose of the task force is to ensure coordinated budgets, policies, and program requirements and to establish effective interdepartmental collaboration and priorities for action. Further, the federal government should provide a sustained commitment and long-term investment in childhood obesity prevention initiatives found to be effective—such as the VERB™ campaign—and those that are vital to measuring progress such as national surveillance efforts to track trends in the obesity epidemic. Surveillance systems—such as the National Health and Nutrition Examination Survey (NHANES), School Health Policies and Programs Study (SHPPS), Youth Media Campaign Longitudinal Survey (YMCLS), Youth Risk Behavior Surveillance System (YRBSS), and National Household Transportation Survey (NHTS)—should be expanded to include relevant obesity-related outcomes. Surveillance systems that monitor the precursors of changes in dietary and physical activity behaviors, such as policy change or alterations in the built environment, need to be expanded or developed. State and local governments should also demonstrate leadership on this issue and make the commitment of resources and policies that lead to actions that implement and evaluate changes in schools and communities.

Industry

Segments of the relevant industries—food, beverage, restaurant, food retail, leisure and recreation, physical activity, and entertainment—have shown constructive responses to the childhood obesity epidemic. Nevertheless, independent evaluations are needed to determine what industry initiatives are effective and contribute to desirable outcomes. Evaluation of industry's efforts to prevent childhood obesity should focus on the assessment and tracking of the proportion of a company's product portfolio and marketing resources devoted to developing, packaging, and promoting healthful products; changes in portion sizes; and efforts to easily convey information about healthful products related to what consumers eat as well as the promotion of physical activity.

Industry and the public health community should work toward nurturing and strengthening partnerships that support obesity prevention

efforts. To expand the federal research capacity to study the ways in which marketing influences children's and adolescents' attitudes and behaviors, industry is encouraged to provide data on pricing strategies, consumer food purchases, and consumption trends from proprietary retail scanner systems, household scanner panels, household consumption surveys, and marketing research. The collaborative work should examine the quality of the data, consider reducing the cost to make the data accessible, and establish priorities for applying the information to promote healthful diets and physical activity. Corporate responsibility can be demonstrated by sharing marketing research findings, to the greatest extent possible, which will assist the public health sector to develop, implement, and evaluate more effective childhood obesity prevention policies, programs, and interventions. Data sharing will need to balance many considerations including transparency, public accessibility, the demands of the competitive marketplace, and legal issues. In certain cases, it might be appropriate for the data to be released after a time lag to keep the public informed with relatively recent data. The committee recommends that the public and private sectors engage in a collaborative process that will assist relevant stakeholders in sharing proprietary data for the public good.

Communities

Communities vary widely in the extent and nature of the resources available to be used in changing the built and social environments to facilitate physical activity and access to foods and beverages that contribute to a healthful diet. A number of state and local governments, foundations, nonprofit and youth-related organizations, faith-based organizations, and community coalitions are demonstrating innovative and collaborative approaches to childhood obesity prevention. However, there is much that remains to be learned, translated, and disseminated, particularly from effective evidence-based interventions that continue even when seed funding and external resources are no longer available.

The committee identified two immediate next steps for communities. Developing a validated community self-assessment tool, such as a community health index, will assist communities to identify their strengths and gaps in designing and evaluating childhood obesity-prevention efforts and could examine local programs and evaluation capacity, the local physical and built environment, and the extent of community involvement. Congress should appropriate funds for the CDC, in

partnership with the Department of Transportation, the Department of the Interior, and other relevant federal agencies, private-sector and nonprofit organizations, and community stakeholders to develop this type of well-validated tool that can be used in economically and culturally diverse communities. Additionally, the National Association of County and City Health Officials (NACCHO), in partnership with government agencies and other nonprofit and voluntary health organizations, should develop a means of compiling and sharing community-based evaluation results, lessons learned, and community action plans as well as provide links to resources, templates, and evaluation tools. A web-based database or repository of published and unpublished literature, case studies, and promising intervention websites is needed.

Schools

Schools are the current focus of many childhood obesity prevention efforts, particularly changes to the school food and beverage environment. Less attention has been paid to increasing physical activity in schools, although this issue seems to be gaining momentum. As is true for community efforts, wide variations are observed in the extent of efforts and the resources available to be invested in obesity prevention by individual schools, school districts, and state agencies. Federal law requires that schools receiving federal funds for school meals must develop school wellness policies by the fall of 2006, which has stimulated school-based health promotion and obesity prevention efforts across the country. Many creative and innovative approaches have been developed by teachers, food service personnel, school administrators, and state and federal agency staff and need to be evaluated. States and school districts should bolster their physical education and physical activity requirements and standards, as should preschools and child-care and after-school programs. Accountability mechanisms are needed for state school nutrition and physical activity standards that include increased transparency and dissemination of school-by-school reports on success in meeting these standards. Further, federal and state leadership is needed to provide adequate and sustained resources to implement changes relevant to obesity prevention in the school environment. Not only are political will and leadership needed to improve school nutrition and physical activity opportunities, but it is critically important that adequate and sustained funding be provided to reinforce these priorities so that attention to this issue does not result in unfunded mandates.

Home

Many families across the country are aware of their role in preventing childhood obesity and are actively making changes towards a healthier lifestyle, while others are not yet engaged in change. A next step for parents, caregivers, children, and adolescents is to periodically assess the home environment and ask such questions as: Are the foods and beverages that are available and prepared in the home healthful and served in reasonable portion sizes? Is physical activity emphasized and a family priority? Do families have established rules or guidelines limiting leisure screen time? Incremental changes are valuable and signal that progress is occurring.

Conclusion

A succinct assessment of the nation's progress in preventing childhood obesity is not feasible given the diverse and varied nature of America's communities and population. However, what can be said is that awareness has been raised about the issue, actions have begun, coordination and prioritization of limited resources is critical, and evaluation of interventions within and across all sectors is essential. A long-term commitment to create a healthy environment for our children and youth is urgently needed. This commitment will require widespread changes in social norms, institutions, and practices beyond those that directly involve children and youth.