

Title of Paper:

Behavioral and Environmental Interventions to Promote Youth Physical Activity and Prevent Obesity

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To the Georgia Health Policy Center

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I. Introduction

State the problem that your paper will address. (For example, in the area of behavior and nutrition, the problem might be: What is the most effective set of strategies for investment by foundation(s) in order to address nutrition behaviors among obese and overweight children/adolescents in communities in Georgia?)

The purpose of this paper is to review evidence that will inform Georgia foundations on funding priorities that are likely to be effective in promoting physical activity in young people that will contribute to obesity prevention.

Scope of paper:

- emphasis is on evidence-based recommendations, to increase likelihood that funded approaches will be effective
- evidence can come from studies that evaluate interventions and those that identify correlates of youth physical activity
- all types and purposes of physical activity and sedentary behavior are considered
- all settings and communication channels for interventions are considered
- age of target population is approximately 4 to 18 years
- recommendations are focused on obesity prevention in the population, not on obesity treatment

II. Policy Context

Outline policy goals and references that support that particular focus (e.g., Healthy People 2010, Clinical Prevention Service Guidelines, AMA Guidelines, APHA Guidelines, Institute of Medicine recommendations).

There are multiple and conflicting physical activity guidelines for youth. Healthy People 2010 applies the adult guideline of 30 minutes per day of moderate to vigorous physical activity to adolescents (1). However, several studies show that a majority of young people are meeting the 30 minutes guideline, yet obesity prevalence continues to climb. This is the primary rationale for the following recommendation that was adopted by an international consensus group: “All young people should participate in physical activity of at least moderate intensity for one hour per day.” (p. 3). Brisk walking is an example of a moderate intensity activity, and it is assumed that young people will accumulate activity in short bursts throughout the day (2). This guideline has been adopted as part of the U.S. Dietary Guidelines (3), and the National Association of Sport and Physical Education recommends from 60 minutes to several hours of physical activity per day for youth (4).

Healthy People 2010 (1) includes an objective that young people should watch no more than 2 hours of television per day. This guideline is based on consistent evidence that time spent watching television is associated with risk of overweight in youth (5). Thus, sedentary behavior should be considered a risk factor for obesity that is largely independent of physical activity.

Numerous governmental, scientific, and voluntary health organizations have identified efforts to promote physical activity as a high priority for public health. These organizations include the American Academy of Pediatrics, American Heart Association, American College of Sports Medicine, American Medical Association, Centers for Disease Control and Prevention, Guide to Community Preventive Services, Healthy People 2010, National Association of Sports and Physical Education, National Cholesterol Education Program, U.S. Bureau of Maternal and Child Health, U.S. Preventive Services Task Force, U.S. Surgeon General, and the World Health Organization (as summarized in 1, 6, 7, 8, 9, 10).

Taken as a whole, the various policy documents indicate that a multi-level approach is needed to create the widespread changes in youth physical activity that are needed for improved health and obesity control. Although some organizations focus on a particular approach such as enhanced physical education or counseling by health care providers, other organizations highlight the need for complementary and coordinated interventions that target individuals, families, organizations, communities, and physical environments through a variety of channels and strategies that include personal and mass media communication, policy changes, and modifications in the physical environment. Interventions can be implemented in various settings such as schools, faith-based organizations, other community organizations, health care, and all levels of government. Because inactive lifestyles have been shaped over time by a variety of forces, and physical activity has been reduced or eliminated from many aspects of life, it is probably necessary for effective interventions to make changes in many settings and on multiple levels in order to re-establish active patterns of living for all young people.

There is no well-accepted model of how to prioritize or integrate the multi-level interventions believed to be needed. However, an ecological model of physical activity (11, 12, 13) would lead one to

- identify settings in which physical activity or sedentary behaviors can take place,
- provide opportunities and incentives for physical activity in those settings,
- reduce opportunities and incentives for sedentary behavior, and
- educate and motivate young people and their families to choose physical activity options and use opportunities to be active.

The aim of the present paper is to review evidence that can guide decisions about which intervention strategies might be highest priority for funding. Two general categories of evidence are available. The best evidence comes from controlled studies of interventions that document whether a particular approach is effective or promising. Because intervention studies with youth are limited, it is important to consider results of correlational studies. Correlational studies identify factors that are related to youth physical activity and suggest that if those factors are changed, physical activity might change. Policy recommendations are guided by evidence, and potential interventions that are not supported by any evidence are given much lower priority.

III. Key Definitions

List key terms and their definitions.

Environment: used in this context to refer generally to the space outside of the person. Typically this term is used to refer to characteristics of the places where people do, or could do, physical activity.

Health curriculum: any formal classroom-based course of study used to educate about, or change behaviors related to, health topics, including physical activity.

Intervention: any means used to intentionally change an outcome, such as physical activity behavior.

Multi-level intervention: the intervention attempts to simultaneously make changes in individuals, families, organizations, and the community as a whole. The rationale for multi-level interventions is that the factors that shape youth physical activity and sedentary behavior operate at all these levels, so to be effective, interventions must change most of the key influences.

Physical activity: any bodily movement. For health purposes, it is believed that activity must be of at least moderate intensity to have health benefits. Brisk walking is a common example of moderate intensity activity.

Physical education: any formal school-based educational program that uses physical activity to achieve fitness, skills, health, or educational goals.

Policy: guidelines, rules, or laws adopted by an organization to govern the behavior of members or make other changes in people or environments.

Sedentary behavior: any behavior that involves mainly sitting or lying with limited motion.

IV. Related Programs and Interventions

Describe those programs and interventions related to your particular area that have proven to be most effective or that offer the greatest promise.

School-based physical education programs

The most extensive and strongest data on youth physical activity interventions come from studies of school physical education (PE). The data are strong enough to earn a “strong recommendation” from the Guide to Community Preventive Services (8). The primary focus of these programs is on increasing physical activity among all students in PE classes, but other goals are pursued as well such as teaching motor skills or sports skills, positive socialization, and promoting physical activity out of PE. Three recent studies indicate the strength of this approach and the supporting evidence. In all of these studies, physical activity in PE was assessed by direct observation.

CATCH: Child and Adolescent Trial for Cardiovascular Health. This is a comprehensive physical activity and nutrition program that was evaluated in 96 elementary schools in 4 states. The PE program increased the proportion of class time spent in physical activity (14). The landmark study demonstrates that both PE specialists and classroom teachers across the country can improve their PE programs.

SPARK: Sports, Play, and Active Recreation for Kids. This is a PE program that was tested in 7 elementary schools and evaluated for multiple outcomes. Improvements were documented in quality of teaching, physical activity in class, physical fitness (among girls) (15), and motor skills (16), without interfering with academic achievement (17). Results were generally better with PE specialists, but classroom teachers also showed improvements.

M-SPAN: Middle School Physical Activity and Nutrition. The PE program was one component of a policy and environmental change intervention that was evaluated in 24 middle schools. Physical activity in PE was increased by 20% over controls, without increasing time in PE classes (18).

School-based health curriculum programs

Many studies have evaluated school-based curricula to promote youth physical activity, often in combination with other intervention components. The majority of studies increased physical activity outside of school, usually assessed by self-report (19), so this approach can be recommended. A few examples are summarized here.

CATCH had a story-based curriculum that was implemented in grades 3 through 5. Its effectiveness was supported by a significant result with self-reported vigorous physical activity (20).

SPARK had a behavioral self-management curriculum for fourth and fifth grade students. Although there were no significant effects on physical activity out of school overall, students who participated more in the self-management program increased in physical activity and fitness (21).

The Class of 1989 study was conducted during grades six through 12, in conjunction with the Minnesota Heart Health Program (22). This seven-year intervention study showed that schools with the multi-behavior self-management curriculum had higher physical activity levels in all years, compared to the control schools.

Planet Health was a 2 year physical activity and nutrition curriculum for middle schools that included components to reduce sedentary behavior. The most promising finding of this study was evidence of obesity reduction among intervention girls (23). Reduction in TV viewing was correlated with lower risk of obesity in girls.

Only one small study has evaluated a school curriculum focused exclusively on reducing sedentary behavior. The program included TV turnoff days, a 7 hour per week TV budget enforced by a timing device, and parent information. TV viewing was reduced dramatically, and there was a significant effect on body mass index and triceps skinfold (24).

School-based policy and environmental changes

The primary aim of the MSPAN study was to evaluate policy and environmental interventions to increase physical activity (and reduce dietary fat intake) on middle school campuses. In addition to PE intervention, a variety of strategies were designed to reduce barriers to, and provide more opportunities for, physical activity throughout the school day. Health policy committees and student health committees were created at schools to select and implement policies to create healthier school environments. Funds were provided to purchase equipment or support programs. Volunteer physical activity providers were recruited from the community, activity spaces were opened after school, and activity opportunities were promoted through various media (18).

The total physical activity intervention (including PE) led to significant increases in observed physical activity on campus. However, policy changes to promote out-of-PE activity proved difficult to implement, so the effect of that part of the program was not significant. However, unpublished analyses showed that changes in availability of supervision were correlated ($r=.43$) with changes in observed physical activity on campus. The totality of the MSPAN intervention had a significant effect on BMI for boys, but not girls, suggesting that physical activity and nutrition environmental changes alone have promise for contributing to obesity control. This study shows that changing policies and providing more supervision on campus can be effective, but there are important challenges to implementation.

Active commuting to school

A very large decline over the past few decades in active commuting (walking, cycling, skating, etc) to school has been documented in other countries, with some data supporting this trend in the US (25). Because the journey to school is a daily behavior, it has the potential to provide substantial caloric expenditure over the school year. A study of Filipino students indicated that boys who walked to school expended 44 kcal per day, and girls expended 33 kcal more per day, than their peers who were driven. This could account for a 2-3 pound difference over a school year, demonstrating the relevance of this behavior to obesity control (26).

Interventions to promote active commuting to school have mainly been supported by the transportation field, to reduce auto traffic around schools and child pedestrian injuries. "Safe Routes to School" include improving street designs for pedestrians and slowing or restricting traffic around schools. "Walking School Buses" organize volunteers to supervise children in a neighborhood as they walk to school. Leaders pick up children at "bus stops" along a predetermined route, and this strategy also promotes physical activity among adults (26).

These interventions are being implemented and evaluated in several countries, but no results are available yet. The programs are attractive because they promote cleaner air and safer streets, as well as physical activity.

Family-based interventions

Because family support is often correlated with youth physical activity, and parents control children's access to activity programs and facilities, there is a data-based rationale for family-based physical activity programs (27). Three major studies have evaluated programs for healthy families as reviewed by Sallis (28) (treatment studies of obese youth are not reviewed). Nader et al conducted an extensive intervention for Mexican American and Anglo families. Baranowski et al studied African Americans. The CATCH study incorporated an assessment of a family-based strategy. Despite the well-designed interventions, none of the studies were successful in increasing youth physical activity. All of these programs required family attendance at meetings or classes, and the low attendance at the meetings is a suspected contributor to the lack of effects. Improving recruitment and attendance of families is the current challenge to researchers in this field. Thus, family-based physical activity promotion cannot be recommended.

With obese children, reinforcing decreases in sedentary behavior is an effective means of increasing physical activity (29). Robinson's study (24) provides further evidence that parents can be engaged in reducing sedentary behavior, but the television control device may have been a more potent component than the parent education. Perhaps parents of nonobese children can be trained to more effectively encourage reductions in sedentary behaviors.

Additional strategies are suggested by correlational studies but have not been tested in intervention studies. The strongest correlate of physical activity in preschool children is being outdoors (27), so parents could be encouraged to find ways of getting their young children to suitable outdoor settings on a daily basis. A critical method by which parents can support physical activity for elementary and middle school students is to transport them to places where they can be active (30). This parent behavior could be promoted as part of other school interventions.

Community-based programs

Eighty percent of young people's physical activity appears to take place outside of school, and much of this is in organized programs, such as youth sports, dance or other activity classes, and public recreation centers (31). Use of after school time for physical activity is critical (27) since this is the primary time for youth to be active. Because it is not feasible to provide adequate physical activity in physical education, there is a clear need to explore ways of increasing the physical activity provided by community organizations (32). However, no published evaluations of interventions with community-based organizations such as recreation centers, youth sports, YMCA/YWCA's, Boys' and Girls' clubs, or faith-based institutions could be located. Interventions with community programs could target increases in the number of participating youth, amount of physical activity during each session, and number of sessions per week. Community organizations need to attract more girls and boys of all ages, ethnic groups, and socioeconomic strata and provide physical activity multiple times per week throughout the year (28).

Active Winners (33) is the only published study to evaluate a community-based youth physical activity program, though it was not linked with an existing organization. Numerous difficulties with implementing the program were identified, including problems with peer leaders, transportation of participants, and discipline.

Creating effective models of community-based youth physical activity programs, ideally linked with school and home interventions, remains a priority. The Trial of Activity in Adolescent Girls (TAAG, a multi-site NIH study) is currently evaluating such an approach, but results are years away. Thus, there are no effective community approaches to recommend though the imperative to intervene with community agencies remains.

Health care-based programs

About 80% of young people visit a health care provider each year (9), so there are numerous opportunities for health behavior counseling. In recent years federal agencies, international agencies, and professional organizations have urged health care providers to routinely assess and counsel children and adolescents about nutrition and physical activity. Comprehensive guidelines for providing preventive counseling to young people in the health care setting have been produced. Bright Futures, developed by the National Center for Education in Maternal and Child Health, provides brief, age-specific recommendations that primary care providers can use to counsel children on physical activity and nutrition (34). The Guide to Adolescent Preventive Services, developed by the American Medical Association, is the most comprehensive set of recommendations on how to provide adolescents with health promotion counseling (35). However, neither of these programs have been evaluated, so neither their feasibility nor their efficacy is known.

PACE+ is a program delivered in primary care to assist adolescents in changing their physical activity and dietary habits (36). Adolescents aged 11 to 18 (n=117) were recruited from four practices for a pilot study. Patients completed a computerized assessment and created tailored plans to change one physical activity and one nutrition behavior. The plans were discussed with the health care provider. Those who targeted moderate-intensity physical activity increased that behavior significantly over 4 months, but there was no effect on vigorous physical activity. This study shows initial promise of a multi-component intervention in primary care, and a larger trial is ongoing.

The evidence on interventions based in health care is too preliminary to warrant a recommendation. There are strong barriers to implementing preventive counseling in primary care, such as time constraints and lack of reimbursement, that will limit the feasibility of any intervention at this time.

Mass media interventions

Several mass media interventions, combined with community events and programs, have been modestly effective in promoting physical activity among adults, but no such studies have been reported for youth. Currently the Centers for Disease Control is mounting the multi-million dollar “VERB” campaign that promotes physical activity as one means of reducing problem behaviors among youth. However, no evaluation of this campaign will be available for some time.

There are numerous potential uses of mass media interventions. They could target:

- increased knowledge of physical activity benefits and guidelines
- promotion of physical activity programs, events, and opportunities
- media programs that lead or teach dance or exercise
- encouragement of parents to support youth physical activity

People usually think of purchasing ads or program time for mass media campaigns, but approaches that rely on “free” media also have promise. In this strategy the physical activity

intervention becomes a news story, and free coverage is provided of events and programs. Partnerships with media companies can lead to regular media programs that incorporate the program messages. Because the reach can be similar to paid media, the “free” media approach is more appropriate for present purposes.

Availability of recreational facilities and programs

Correlational studies have consistently shown that young people with access to recreational facilities and programs are more active than those without access (27). The strength of these data led to a recommendation of this strategy by the Guide to Community Preventive Services (8). These data provide justification for providing some support for enhancing recreational facilities so they are more suitable for popular youth physical activities. Existing physical activity programs could also be supported to expand their services to more participants, especially low-income youth who have limited opportunities for physical activity.

Community design

Researchers in the transportation and urban planning fields have been studying how the design of communities can either help or hinder walking and cycling for transportation. These studies complement studies in the health field that only considered recreational physical activity. A recent review (37) showed people who live in neighborhoods with “traditional” designs travel more by walking and cycling than those who live in “suburban” neighborhoods. In traditional neighborhoods, there is mixed land use with shops close to homes, streets are connected in a grid-like pattern, density is relatively high, and there is a good sidewalk network. Suburban neighborhoods create barriers to walking because shops and other destinations are separated from residential areas, streets tend to have very long blocks and are poorly connected, density is very low, and there may or may not be sidewalks. A small study of adults showed that residents of a traditional neighborhood did 60 more minutes per week being physically active, and 35% were overweight, compared to 60% who were overweight in a suburban neighborhood (38). These studies are showing a large effect of neighborhood design on physical activity and weight. Public health professionals are coming to believe the dominance of suburban development patterns may be an important underlying reason for the obesity increase in the US.

However, there are no similar published studies with young people, and there is reason to believe the effects of community design may be different. For example, many families move to neighborhoods with cul-de-sacs so children have a safe place to play away from traffic. Thus, suburbs could promote youth activity while interfering with adult activity levels. Some recent analyses of one of our studies provide the first actual data with youth. About 100 16-17 year olds wore physical activity monitors for one week. The neighborhoods around their homes were analyzed for “walkability” according to the characteristics described above, distance from parks, and number of private recreational facilities nearby (such as dance and martial arts studios). Adolescents living in walkable neighborhoods did much more total physical activity than those living in suburbs. This was a strong relationship. The recreational environment variables were not related to activity levels (39). In suburban neighborhoods, parks, shops, and recreational destinations are rarely within walking distance of homes, so neighborhood design could help explain the important role of parent transportation in youth physical activity (30). So far it looks like traditional neighborhoods may be healthier for both adolescents and adults. We have to wait for studies with children before making any conclusions about that age group.

V. Contributing and Contextual Factors

Explain major contributing or contextual factors that help make programs or interventions successful.

Note any factors that present challenges to success.

Identify what is required to assure that programs or interventions are sustainable after funding ceases.

Demographic variations in physical activity can identify high-risk subgroups

Based on the review by Sallis, Prochaska, and Taylor (27):

- boys are more active than girls
- physical activity levels decline dramatically with age in both sexes
- physical activity levels may be lower in lower-income and ethnic minority children

Thus, adolescents, girls, lower-income, and ethnic minority youth can be considered high-risk for inactivity and at higher priority for interventions. Increasing access to programs and facilities by low-income and minority youth may be the major policy consideration. Interventions are needed at all ages. Although children are generally active, interventions may provide even more activity and attempt to prevent some of the age-related decline. The majority of adolescents need interventions to help them achieve the daily activity guidelines. Enhancing girls' participation may be best achieved by ensuring that programs in all settings contain activity choices that are popular for girls and that promotional strategies specifically target girls.

Crime and safety

Fear of crime is often discussed as contributing to a growing unwillingness of parents to allow children to play outdoors or travel on their own. Unfortunately, there are few data linking actual or perceived crime to youth physical activity. Studies are mentioned showing that while crime rates have declined in the past 15 years, fear of crime has increased dramatically. Although a brief search did not reveal such studies, they may exist. In any case, parents often talk about the fear of crime as a rationale for instructing their children to stay indoors after school. We can assume this is a background factor with potentially great impact on children's activity levels and as a complicating factor in interventions.

If we accept that most parents have serious concerns about their children's safety, the implication is that young people's reliance on organized physical activity programs is likely to grow. We may prefer that children were able to play in their neighborhoods on their own, but many parents are not ready to support a return to this practice on a widespread basis. While we conduct research to understand the effects of fear of crime on child physical activity and develop solutions, current physical activity promotion practices should emphasize creating opportunities for supervised physical activity.

Concern about safety from traffic may play a similar inhibiting role, because parents will be reluctant to allow children to cross busy streets. This concern may lead parents to restrict children's travel on their own, which is typically by walking or cycling.

VI. Evaluating Success

Suggest short term or intermediate outcomes that are most viable for measuring success.

The evaluation plan needs to emphasize both process and outcome assessment.

Process assessment is needed to determine the extent to which the intervention activities were actually implemented. Because multiple intervention strategies need to be used, it is difficult to monitor all the main components. Process assessment can answer questions such as: How much did PE classes improve in quality and quantity? How many more physical activity programs were introduced by community organizations? How much did physical activity increase per session in youth sports programs? How many youth participate in after-school physical activity programs at school and community agencies in a given week? How many times were youth physical activity programs promoted on radio and TV? Tracking such process variables can identify where implementation is insufficient and challenges need to be overcome. It can identify which grantees are being effective and which are not.

I recommend a combination of agency records and direct observation for process evaluation. Grantee staff can report changes in program implementation, youth participation, and policy changes. However, changes in the conduct of programs to increase the amount of physical activity provided need to be assessed by direct observation, because staff reports are unreliable. There are already developed observational instruments to evaluate PE programs (40) and physical activity programs and opportunities in recreational settings (41).

Outcome evaluation is needed to document the impact of the overall program on youth physical activity. I strongly recommend the use of objective measures, such as accelerometers, for the primary outcomes. Accelerometers are small electronic devices that provide minute-by-minute recordings of activity level for up to several weeks (42). Because they do not display any readings, there is no incentive for children to generate false readings. Accelerometers have been used extensively for youth (43), even in large studies. Self-reports are not recommended, because they are not validated for children younger than 11 or 12, and even adolescents provide reports of marginal utility (44). Self-reports can be used for collecting data about specific activities, the settings where they do activities, and participation in specific programs.

Outcome evaluation should be conducted on a sample of all youth in the community, not just participants in programs. Because multi-level interventions involving the entire community are needed, young people and schools within a community cannot be assigned to intervention or control conditions. The recommended design is to fund a full-scale multi-level program in one community and compare results to a similar nearby community that hopefully does not share TV, radio, or newspaper markets and is used as a no-intervention comparison.

VII. Recommendations for Georgia

Offer recommendations for the State of Georgia as a whole and/or for communities in Georgia. Of particular interest are effective programs and interventions of highest priority for communities with limited resources. (For example, if a foundation had X amount of money, what would be the most effective program/intervention it should fund?)

School-based physical education programs (HIGH priority)

School PE is supported by the strongest evidence and can reach the most young people because PE is offered in virtually all schools. Thus, a high priority should be placed on supporting schools to adopt evidence-based programs. CATCH (www.flaghouse.com), SPARK and MSPAN (www.sparkpe.org) programs are all being disseminated. The dissemination of SPARK has been evaluated, and about 80% of teachers trained up to 4 years previously reported they continued to use the program (45).

Foundations could offer matching funds for schools to provide curriculum materials, training, and equipment for evidence-based PE programs. However, young people cannot obtain sufficient physical activity in PE, so additional intervention approaches need to be pursued simultaneously.

School-based health curriculum programs (HIGH priority)

Theoretically-based health curricula targeting behavior change often have significant effects on physical activity. Most physical activity curricula have been implemented in conjunction with nutrition curricula, PE programs, or other components, so strong effects should not be expected from physical activity curricula alone. The programs most likely to affect overweight tend to have a strong emphasis on decreasing sedentary behavior.

The most prudent foundation strategy at this time would be to fund or otherwise promote adoption of evidence-based curricula (e.g., CATCH, SPARK, Planet Health) to be implemented as part of a multi-component school approach. It is important to provide support to ensure the curricula are adequately implemented.

School-based policy and environmental changes (MEDIUM priority)

The MSPAN study showed that schools often provide environments that discourage students from being active on campus. Although changing policies and environmental factors was shown to be moderately correlated with increased physical activity, there are substantial barriers to making those changes. Evidence of BMI changes from the total intervention make this an important strategy. Changing school policies and environments should be considered a longer-term objective, but these should be pursued as part of a multi-component school intervention strategy.

Active commuting to school (MEDIUM priority)

There is evidence that walking to school can lead to substantial energy expenditure that can contribute to obesity control. The potential health benefits, in combination with the safety and environmental benefits, lead to a positive recommendation for strategies to promote active commuting to school.

Specific strategies should be developed in partnership with state and local transportation departments, because there are opportunities for joint funding. A reasonable approach would be to jointly fund and evaluate some demonstration projects at schools that are eager to implement programs that would include multiple components, including promotion of active commuting to students and parents. Active commuting programs should be considered part of a comprehensive school- or community-based approach.

Family-based interventions (LOW priority)

Parent support is important for youth physical activity, but efforts to intervene with families have failed. This is likely due to the difficulty of engaging busy families in time-consuming interventions, and a poor understanding of how to change family interaction patterns. Thus, it is unwise to spend significant resources on family-based programs. However, incorporating parent education into school-based curricula and media programs could be justified, especially if these parent behaviors are targeted:

- ensuring that preschool children are allowed to play outdoors frequently
- transporting elementary and middle school students to places where they can be active
- setting guidelines to reduce sedentary behavior

Community-based programs (MEDIUM priority)

It is clear that community-based programs are needed, especially after school. There are many agencies that could provide activities or could improve their provision of activities, but there are no evidence-based models for intervening with community organizations. The Active Winners study shows the challenges of organizing a separate program.

Because it is essential to promote physical activity in the after school hours, strategies must be developed to work with parents, schools, and community agencies to provide safe and convenient ways to support youth physical activity during this critical time. Even though no specific strategies can be recommended, funding is needed to support and evaluate model programs based in community agencies that already provide physical activity. The goal of such programs should be to involve as many young people as possible, subsidize participation of low-income students, provide sufficient amounts of physical activity on a daily basis.

Health care-based programs (LOW priority)

Due to the limited evidence and barriers to implementation in the health care system, even the well-designed but un-evaluated Bright Futures and GAPS programs cannot be recommended at this time. Health care providers who are enthusiastic about getting involved with youth physical activity promotion could be (a) referred to Bright Futures or GAPS and (b) engaged in advocating evidence-based programs to schools and community agencies.

Mass media interventions (LOW to MEDIUM priority)

There are no evidence-based models of mass media campaigns for youth health promotion. Thus, paying for media time is not recommended.

The “free” media approach could easily be integrated into other multi-component approaches. Working with local journalists and media companies to promote physical activity programs and incorporate physical activity messages into existing media programs could enhance the impact of the overall approach at a modest cost. Even the “free” media approach

requires a specific media plan, staff time, and some expert consultation. I recommend a medium priority with a modest budget for this unproven approach.

Availability of recreational facilities and programs (MEDIUM priority)

Partnerships with parks and recreation departments could provide partial funding for improving physical facilities at parks that local data suggest would promote use of that park for youth physical activity. Examples could include soccer goals, frisbee targets, skateboard areas, and sound systems for dance or aerobics classes.

Youth physical activity and sport providers would likely be enthusiastic to apply for funding to enhance the public health impact of their programs by:

- increasing participation by low-income youth (may require fee subsidies or transportation)
- improving leadership skills to increase physical activity in sessions
- increasing frequency of sessions
- providing activities year round
- increasing choice of activities offered to appeal to a broader range of youth
- more effective promotion of services

Community design (MEDIUM priority)

The evidence that suburban neighborhood designs make it difficult for people to walk and cycle is strong for adults. We only have one study showing that adolescents are less active if they live in the suburbs. However, I recommend a medium priority be placed on efforts to advocate for policies that promote designs for new developments that make it easier for young people to be active.

It is likely when schools, shops, and recreational facilities are near homes, young people will be allowed to walk and cycle to a variety of destinations. It is also essential to consider that streets are made safe for pedestrians and high-speed and high-traffic streets be kept to a minimum. Transportation and urban design professionals have a great deal of relevant knowledge about these issues, and efforts are underway to create partnerships between these groups and health professionals. Georgia foundations can build on this work.

Advocating for better community design in new developments and improving existing neighborhoods for pedestrians should be considered an ongoing part of any effort to promote youth physical activity. This will be a long-term process, but many of us believe that making “activity-friendly communities” is essential for long-term promotion of active living and gaining control over obesity.

Foundations can be powerful catalysts for change in local communities and on a statewide level. There are numerous partners that could be supported to enhance their advocacy work. Advocacy training could be provided to all grantees so they can contribute to long-term efforts to improve the design of Georgia communities.

A Multi-Level Approach to Integrating Evidence-Based Approaches for Promoting Youth Physical Activity

Community Level

Active commuting to school (partner with transportation department)
“Free” media approach to promote active living for youth (partner with media companies)
Advocate for creating more “activity-friendly communities” (partner with advocacy organizations with similar goals)

Organizational Level

School-based physical education
School-based health curriculum for physical activity
School policy and environmental changes
Active commuting to school
Community agencies provide more physical activity, to more youth, more often
Improve recreational facilities and increase access to programs for low-income youth (partner with parks and recreation department and other community agencies)

Family Level

Promote active commuting through school media
Targeted messages to parents through free media

Individual Level

Promote active commuting through school media
Promote physical activity programs, opportunities, and events through free media

VIII. References

Provide citations from the literature to support content in all sections of the paper. Use the following format for books and journal articles. For other types of sources, include all pertinent information in a comparable format.

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