

Factors Influencing Implementation of Local Policies to Promote Physical Activity: A Case Study of Montgomery County, Maryland

David Salvesen, Kelly R. Evenson, Daniel A. Rodriguez, and Austin Brown

Policy interventions such as zoning ordinances, school facility siting guidelines, capital improvement programs, and park master plans hold particular promise for promoting physical activity, especially at the local level. Despite increasing attention to the relationship between built environment characteristics and physical activity, there is a paucity of research on the extent to which local policies can promote or hinder physical activity. Furthermore, the impact of local policies on physical activity should depend on how effectively the policies are implemented. Based on the policy implementation literature and using Montgomery County, Maryland, as a case study, this study identifies factors related to the successful implementation of local policies hypothesized to influence physical activity. For our study, we conducted an extensive policy review and 17 in-depth interviews with 26 individuals. The interviews were transcribed, coded, and analyzed to identify the relevant factors that affect policy implementation. Our findings suggest that knowledge and awareness, commitment and capacity, intergovernmental coordination, the presence of an advocate or champion, and conflict influence physical activity policy implementation at the local level. Those trying to increase physical activity through policy could focus on these implementation features to help make policy implementation more successful.

KEY WORDS: physical activity, policy implementation, policies promoting physical activity, policy champions, Montgomery County

More than 10 years ago, the Centers for Disease Control and Prevention and the American College of Sports Medicine recommended that every adult in the United States accumulate at least 30 minutes of moderate-intensity physical activity per day.¹ Regular physical activity helps prevent obesity and reduces the risk of developing chronic diseases such as cardiovascular disease, certain cancers, and diabetes.²

Across the country, state and local governments have adopted policies to promote greater physical activity.³ However, the adoption of policies is not sufficient to promote greater physical activity: policies are not self-implementing. Successful implementation depends on a host of factors, such as the commitment, capacity, and resources of public agencies.

Over the past 25 years, researchers have identified a number of factors necessary for successful implementation of policies, including clear policy goals, committed and skillful leadership, sufficient financial resources,

Funding for this project was provided by the Centers for Disease Control and Prevention #U48/DP000059-01. This study was also partly supported by a grant from the Robert Wood Johnson Foundation Active Living Research program. The authors thank Carrie Fesperman and Adena Messinger for their assistance. We also thank the participants in Montgomery County who shared their time and insights with us.

Corresponding Author: David Salvesen, PhD, Center for Sustainable Community Design, Institute for the Environment, University of North Carolina—Chapel Hill 27599 (salveen@unc.edu).

David Salvesen, PhD, is Deputy Director, Center for Sustainable Community Design, Institute for the Environment, University of North Carolina—Chapel Hill.

Kelly R. Evenson, PhD, is a Research Associate Professor at the University of North Carolina—Chapel Hill School of Public Health and a fellow with the American College of Sports Medicine.

Daniel A. Rodriguez, PhD, is Associate Professor, Department of City and Regional Planning, and Director of the Carolina Transportation Program at the University of North Carolina at Chapel Hill.

Austin Brown, MPH, is a Research Associate, Highway Safety Research Center, University of North Carolina at Chapel Hill, where he works on pedestrian and bicycle related projects, particular Safe Routes to School.

support by key legislators, and coordination among agencies.⁴⁻⁶ In addition, knowledge of a problem is a prerequisite to action. Kingdon⁷ asserted that certain issues will become part of policy maker's agenda when there is a change in a key indicator, such as an increase in diabetes, or when there is a crisis, for example, a flood or a hurricane, which Kingdon called a "focusing event." Several researchers have identified government commitment and capacity as important in achieving policy objectives.^{8,9} *Commitment* refers to a government agency's willingness to implement policies, whereas *capacity* refers to its ability to implement, including possessing sufficient know-how and resources. McLaughlin identified local capacity and will as two paramount variables that affect the outcome of the implementation process.

Intergovernmental coordination is also important in facilitating policy implementation, particularly those policies that address issues that cross jurisdictional boundaries or that fall under the charge of different agencies. Whether the issue is reducing air pollution, developing a regional plan, or delivering social services to the poor, implementation often requires close coordination across agencies.⁶ Yet, there are several obstacles to coordination, such as conflicting missions or concerns about the loss of autonomy. Intergovernmental coordination usually occurs only when it helps the participating organizations do something they could not do individually, or could not do as well.¹⁰

Despite extensive research on policy implementation and on the importance of physical activity in improving public health, there is a paucity of research on the extent to which local government policies promote or hinder physical activity.¹¹ Local governments vary in their adoption of policies to promote physical activity. Why the difference? What motivates policy makers in some communities to adopt policies that facilitate greater physical activity? And what factors affect the implementation of those policies? The purpose of this study was to explore factors that affect the implementation of policies that are hypothesized to influence physical activity in a single county.

To guide our investigation, we drew from the extensive literature on policy and planning implementation^{4,9} and identified several policy arenas likely to affect physical activity, namely, transportation, education, city planning, health, and recreation. On the basis of that literature, we postulated that local policies can affect, directly or indirectly, physical activity, but the impact of such policies depends on how effectively they are implemented. We focus on several factors identified in the literature as important to successful implementation of policies: knowledge/awareness, commitment and capacity, and intergovernmental coordination, and examine the importance of these fac-

tors in a case study of Montgomery County, Maryland. In short, we found that all of these factors mattered, although some more than others.

● The Setting: Montgomery County, Maryland

Located adjacent to Washington, DC, Montgomery County, Maryland, has been a pioneer in the implementation of planning and growth management tools in the United States. The county focuses on controlling the fiscal, mobility infrastructure, and environmental (water and air quality) impacts of development¹² through general and area-specific plans, regulations, administrative devices, taxation and funding schemes, public investment programs, and land acquisition.¹³ For example, the county has adopted an adequate public facility ordinance to help ensure that infrastructure keeps pace with development and uses transferable development rights to preserve open space.

Of direct relevance to physical activity, the county has taken a number of steps to promote nonautomobile travel, for example, by encouraging mixing of land uses, improving street connectivity, expanding the sidewalk and off-road trail network, and encouraging higher-density development around transit stations. Informally, the county established operating procedures and guidelines on a variety of tasks and activities, ranging from land development approval to sidewalk snow cleanup responsibilities, and the removal of trash bins from public parks, all of which have a bearing on physical activity.

The Policy Environment in Montgomery County

Numerous policies and plans could promote physical activity, such as the county's master plan for parks, a county-wide plan for trails within parks, and an open space plan. In addition, the county has adopted guidelines for new development, whereby developers provide recreational amenities on the basis of the population age and projected demand. Finally, the county created parking meter districts in which a portion of parking revenue is dedicated to bicycle and walking projects and promotion.

The policy richness of Montgomery County sets the institutional stage to ask questions regarding the implementation of policies related to physical activity. Specifically, we were interested in the following questions:

- What are the key factors that support or hinder local policy implementation, particularly as it relates to physical activity?
- Are each of these factors equally important and how do they interrelate?

● Methods

To address these questions, we conducted an exploratory case study of policy implementation in Montgomery County, Maryland. Qualitative research is ideal for exploratory analysis about, in this case, the factors that support or hinder the implementation of local policies promoting physical activity.¹⁴ For the study, we reviewed existing policies and procedures, reviewed and coded existing land use plans, and conducted structured interviews with key informants. The review of policies and plans helped guide the development of questions for the key informant interviews.

Review of existing policies

During the interview, participants were asked to identify policies, either formal or informal, that might affect physical activity. We analyzed quotes on specific policies and reviewed hard copies of county policies and plans, such as the County Master Plan. *Policies* were defined as “those laws, regulations, formal, and informal rules and understandings that are adopted on a collective basis to guide individual and collective behavior.”¹⁵ Policy could include (1) formal written codes or regulations bearing legal authority, (2) guidelines or procedures (written standards that guide decisions) and (3) unwritten social norms.¹⁶

Review and coding of plans

To gain familiarity with the policy milieu regarding physical activity in Montgomery County, we reviewed eight adopted and approved plans covering urban, suburban, and rural environments of the county. These plans included four area master plans, two sector plans,

the bikeways master plan, and the county-wide general plan, which outlines the overarching goals and objectives for the county. The plans were reviewed and coded using an audit tool that captured information on 42 elements of each plan’s goals and policies that were thought to be directly or indirectly associated with physical activity.¹⁷ These elements included goals and policies such as mixed land use, improved air quality, walkable/livable communities, economic growth, recreational opportunities within walking distance, pedestrian and bike access to areas, infrastructure investments to manage growth, traffic calming, commute reduction programs, and interagency planning. Information derived from the review was used to inform the development of interview questions.

Structured interviews

In total, we conducted structured interviews with 26 individuals in 2005. Interviewees were selected on the basis of their knowledge of the county and its policies. At the end of each interview, we asked for suggestions of whom else we should interview, such that the interview process continued until saturation was reached. Interviews usually lasted 1 hour and participants were offered \$20 for their participation.

Using a standardized interview guide, one of three trained interviewers conducted each interview. The guide contained questions on each component of our policy framework. Examples of questions are shown in Table 1. We tailored the guide to the following job positions, while still covering each of the components of the policy framework: elected officials, real estate consultants, board of education, planners (including bikeway and pedestrian planners, transportation planners, and school facility planners), and staff from

TABLE 1 ● Examples of questions from the interview guide

Domain	Sample questions
Existing policies	What (state, county, or local) policies encourage or discourage opportunities for physical activity in Montgomery County (eg, getting to destinations, for recreation, or getting to PA facilities)?
Implementation and effectiveness	Have the policies been implemented? How? Are they effective in reaching desired outcomes (ie, are they efficacious)? Have the policies that were implemented <i>not</i> worked?
Policy change	What policy changes or additions have been made or should be made to improve physical activity?
Awareness and commitment	Do policy makers view lack of physical activity, or lack of opportunities for physical activity, as a problem? How important is the issue of physical activity, or of opportunities to be physically active, compared with other issues in the county? Has funding been appropriated to support or operationalize the policy?
Knowledge and capacity	Do local officials (eg, county manager and county and local planners) have the knowledge and resources needed to develop and implement programs and policies to increase opportunities for physical activity through transportation, land use, physical design, parks, and schools? Are there measures in place to enforce policy decisions?
Roles and responsibility	What agencies or departments are primarily responsible for implementing programs and policies that could result in higher physical activity by residents in Montgomery County?
Coordination	How are agencies interacting or coordinating their policies or goals to increase the opportunities for physical activity?

departments of parks, public health, and recreation. We also asked participants for any other relevant information they wished to share at the conclusion of the interviews.

Interviews were audio taped, transcribed verbatim, and checked for errors. Transcripts were coded for themes on the basis of a codebook that was developed from our interview guide, but augmented throughout the coding process. This process involved reducing all of the data to codes using a codebook.¹⁸ A second coder independently checked all coding and the few discrepancies that arose between the two coders were discussed and resolved (the two raters conferred until they reached consensus on coding). Data were then entered into NVivo, a software program used in the analysis of qualitative interviews. All quotes were then reevaluated on the basis of topic areas to move toward data reconstruction. Investigators created and evaluated matrices containing quotes according to themes. This process of data reduction and reconstruction allowed distinct individual and overarching themes to emerge from the interviews.

The three pieces of analysis—review of policies, review of plans, and the interviews with key informants—were integrated to provide insights into the policy environment within which key informants operate in Montgomery County and how those policies could be used to promote or hinder physical activity.

● Results

Several themes and issues emerged from our interviews with key informants: (1) knowledge and awareness of the importance of physical activity and the need to link it with planning; (2) commitment among agency staff to finding ways to increase physical activity; (3) the need for intergovernmental coordination; (4) presence of champions who advocate for change; and (5) dealing with conflict. Each of these themes is described below.

Knowledge and awareness of physical activity needed to link with planning

Our interviews revealed a weak nexus between planning actions and physical activity. That is, few policies or plans were adopted specifically to increase physical activity. For example, planners interviewed never referred to bicycling and walking as “physical activity.” Their work to promote environments that support walking and bicycling was justified in terms of improving air quality, livability, and congestion, rather than promoting physical activity per se.

Several possible reasons exist for this weak nexus. First, physical activity and obesity have received limited physical attention from county health officials. Nei-

ther physical activity nor obesity was included as a Montgomery County health priority in 2004. Although this translates more immediately into lack of resources and staffing for physical activity and nutrition activities, it also limits the ability of staff to create bridges with other county programs, such as planning, that will benefit from increased coordination and shared knowledge.

Second, a general lack of specific data exists about the importance of physical activity for healthy lifestyles, such as data on moderate and vigorous physical activity for multiple groups (eg, children, adolescents, older adults) in the county, data on body mass index for these groups, and on where physical activity is occurring (trails, parks, etc). Data can be critical for identifying common policy goals, stimulating change, and supporting leadership roles. A participant in a policy-making position remarked, “. . . we lack good data and that’s been part of our problem.” This limitation is also reflected in the way schools operate in the county: one participant remarked, “The only data the school system cares about are math scores and reading scores.”

Third, even in the presence of leadership, data, and knowledge, the ability to effect change takes time. Common goals and a shared language take time to develop. For example, the county’s parks and recreation department recently surveyed its users and found that it lacked facilities for teenagers, such as a skateboard facility. A Parks and Recreation Department official admitted that “[w]e . . . are very traditional. If a new trend comes along, . . . it’s going to take us 10 years to respond.” A similar theme surfaced when transportation planners reflected on the growing demand for trails that can be used by bicycles and pedestrians: “It takes time. It takes a lot of outreach and education.”

Committed staff find ways to make projects happen

Funding usually determines which projects will be implemented. This includes funding for planning activities, staff, infrastructure projects, and maintenance. A participant summarized it candidly, “What gets funded, gets done. What doesn’t get funded, doesn’t get done.” County officials, however, displayed a knack for finding opportunities to build new sidewalks and trails, or expand/connect existing ones, especially when resources were limited. For example, the county works closely with state agencies to piggyback county projects on to the state’s. If the state highway administration is planning to resurface a road, the county bikeway coordinator will determine whether there is a gap in the sidewalk along that road, and request that the state include the missing piece of sidewalk as part of their project.

If the state highway administration is coming in and resurfacing a road, then we'll . . . drive up and down the road [to see] if there's a gap in the sidewalk or if there is a rise or something, a pole in the way. Then we'll take the time to write a short memo . . . asking them to look at that as part of that resurfacing project to try and piggyback on that effort.

Similarly, during subdivision review, the County Parks and Recreation Department determines whether a proposed project is consistent with the master plan, and whether there are opportunities to fill gaps in the open-space network or in its system of hiking trails. As a Parks and Recreation Department official remarked: "Every single time a subdivision comes in, we review it for trails and trail connections." Always on the lookout for potential school sites, the school district may also be involved. "On several occasions, they [the school district] have come to us and said, 'wait a minute, you're looking at that development. We might need them to dedicate 12 acres for a school site.'" Locating a school within a new residential development project could encourage children to walk or bike to school.

Finally, the county can stretch scarce resources for projects promoting physical activity by partnering with private organizations. For example, the county can partner with local hospitals or employers to develop a trail system. In Montgomery County, several Heart Smart trails were developed with help from Kaiser Permanente and the Centers for Disease Control and Prevention. These trails are hard surfaced trails 1 mile or less in length, designed to be coupled with promotion to encourage users to track their walking progress. Another example is the transit promotional program supported by local employers, allowing pretax monies to go toward transit.

Institutionalized mechanisms for intergovernmental coordination

Over the years, Montgomery County has developed a variety of mechanisms to facilitate greater coordination across government agencies, between the county and local governments, and between agencies and residents of the county. The county coordinates everything from building parks and recreational facilities to creating a master plan. For example, under the county's mandatory referral process, all public agencies must submit their proposed projects, such as a bike path or ball field, to the planning board for review and comment. This provides an opportunity for each agency to comment on the project and to angle for additions or modifications that help them achieve their mission. One county official noted, "Through our mandatory referral process, we turn on the magnifying glass for pedestrian accommodations."

Similarly, extensive coordination occurs throughout the process of preparing and implementing the county's master plan and as part of development review. Finally, the county's annual growth policy facilitates coordination among agencies. The policy requires, among other things, that zoning, transportation, and development review be closely coordinated. As a result, coordination between transportation and land use planning is "very tight" according to a county official. Close proximity of offices helps: the land use planners and transportation planners share the same building.

Coordination among government agencies is important, not just because it can smooth government operations and lead to cost savings but also because it could create opportunities for greater physical activity. For example, colocating schools and recreational facilities, piggybacking bike lanes on to road improvement projects, and requiring that developers set aside land for parks trails all could lead to increased physical activity.

Championing for change

We found that a "champion" or advocate can influence the policy making and implementation process by raising awareness and motivating change with regards to physical activity, either intentionally or not. We learned of two types of champions in Montgomery County. The first type included those who made policies, such as legislative or council members. For example, one interviewee stated, "It just seems to be the champions and less so policies in the county [that make change]. More individuals given a little bit of authority or direction from somebody like the County Council or the County Executive. That's how some of the energy gets funneled into making some of these [physical activity] programs go through." In Montgomery County, a council member was an advocate for reducing childhood obesity. "Well I have made obesity a priority issue for myself . . . and I have used the bully pulpit to try and raise public awareness in the county."

The second type of champion included those who were assigned jobs that allowed them to be champions, such as a bike or pedestrian coordinator or a plan reviewer. For example, during the planning review process, the Maryland National Capital Park and Planning Commission has a staff member following the projects, who can suggest incorporating bike paths or sidewalks into large projects. However, it is up to the staff person to recognize this and bring it up. "[I]f there's not an overriding direction from the top, then basically it's left to the individual project managers."

This suggests that county health officials could become champions themselves, or they could help

identify and support elected officials who will champion for policy changes to promote physical activity.

Dealing with conflict

We found that conflict sometimes hindered the implementation of policies. Conflict between agencies or between the county and its residents can cause delays in building projects that could promote greater physical activity. Participants identified conflicts with citizens, interest groups, local and federal agencies, and even within a single agency. Of these, participants referred to conflicts with citizens and interest groups as the most puzzling and protracted. Conflict with citizens emerged when agency actions disrupted the status quo. For example, the county requires that sidewalks be shoveled after a snowstorm. After the county began imposing fines on residents that did not comply with this requirement, residents elsewhere opposed the building of sidewalks in their neighborhood. Another frequent conflict with citizens relates to building connections from established neighborhoods to existing bicycle and pedestrian trails. Planners described the situation:

[I]f we have a development coming through or if we have a road project, some folks will think that there's a need for connection [to a neighborhood] . . . [and] usually there is somebody [that] thinks that there shouldn't be a connection there. And they will come up with the reasons why there shouldn't be [a connection].

Conflicts with interest groups also occur. Participants noted that, in some cases, environmental advocacy groups have opposed sidewalk expansions because they would increase impervious surface cover, despite the potential benefits that the sidewalk could confer.

In contrast, other conflicts were more predictable and therefore enabled strategic and opportunistic behavior of the type identified with the funding for sidewalks from state highway agencies. The perennial example of predictable conflict used by many participants is the preference for automobile-based solutions of the transportation planners. "Transportation planners don't really care about [mixed uses]. Their issue is traffic and congestion." This focus on congestion reduction often results in policies that favor investments in automobile projects over other transportation modes. For example, traffic lights that prioritize the movement of vehicles instead of pedestrians and bus stops that favor minimized delays over the safety of riders boarding and alighting are examples of conflicts between current practice and pedestrian activity. Often such standards have been institutionalized in the practice of traffic engineering and transportation planning, limiting the pedestrian and bicycle advocates' policy influence.

● Discussion

We postulated that local policies influence physical activity, but that the implementation of such policies is affected by factors such as the knowledge and intent of policy makers, commitment and capacity of agencies and their staff, level of intergovernmental coordination to achieve policy goals, and the presence of a policy champion. Our research suggests that all of these factors mattered. In addition, the issue of conflict emerged as another element that can affect local policy implementation.

Although each of these factors individually can influence policy implementation, they are, of course, interrelated. For example, knowledge of an issue typically is a prerequisite to the emergence of a policy champion. The actions of a champion could lead to policy change, but without adequate resources and a committed staff, implementation would suffer. Intergovernmental coordination sometimes occurs out of necessity, because one agency lacks the resources to implement a project on its own. In addition, conflict between agencies can make coordination difficult and can thwart the intentions of champions. The impact of each factor individually, however, was difficult to ascertain using a single case study.

The commitment of elected officials and staff certainly seems to influence the implementation of policies, including those that affect physical activity. Berke and French¹⁹ found that without an adequate level of political commitment, plans might be of little use. Committed staff will identify opportunities to promote physical activity, for example, suggest adding another link to the trail system when reviewing a proposed development for compliance with the master plan.

Capacity is important, and strong commitment to a particular policy can be undermined by lack of resources. Adequate resources, however, are no guarantee that a policy will be implemented. In Montgomery County, several programs received initial funding to identify improvements around key pedestrian areas (such as schools and metro stops) only to find that the budget available for such improvements was minute. Limited funds also reveal tensions between the possible uses for the funds. For example, while funding for facility expansions comes from a source linked to land development activity, maintenance of pedestrian facilities does not have such directed source. As a result, very limited funds are allocated for maintenance of pedestrian facilities. In other cases, agency priorities direct funding away from investing in the maintenance of pedestrian and bicycle facilities.

In some cases, funding was available for projects that would support physical activity, but commitment was

lacking. For example, state highway projects often bring with them sufficient funds for related projects, such as sidewalks. But the county has to fight for sidewalks, because there appears to be little commitment at the state level.

Coordination across government levels and agencies helped achieve policy goals, including those that have no impact on physical activity. For coordination, agencies must possess a shared purpose and a desire for joint action. Given the obstacles that can exist, such as conflicting missions, lack of resources, personal differences, and the absence of a person whose job it is to ensure that coordination happens, it is remarkable how much coordination occurs in the county. Coordination is particularly important given the fragmentation that exists across agencies. For example, the MNCPPC is responsible for preparing the master plan, but the county is responsible for implementation. Zoning is separate from planning. In addition, as in many communities, decisions about land use typically occur in isolation of school facility planning. Future school sites are identified in the master plan, but the County Council often approves subdivisions without consulting the school board to ensure that there is sufficient capacity in the schools to handle the additional students.

Montgomery County has institutionalized intergovernmental coordination by building the organizational and administrative infrastructure—mandatory referral, annual growth policies, piggybacking, and the master plan process—as well as by creating an expectation or culture of working across boundaries. Successful coordination among government agencies does not necessarily increase opportunities for physical activity. Intent is also important, as are the efforts of a policy champion.

Several studies have demonstrated that achievement of policy or program objectives is boosted by the actions of an advocate or champion.^{20–22} Such champions are willing to invest their time, energy, reputation, and money to promote a particular position or issue. Successful champions embody three key qualities: (1) they have some claim to a hearing, because of their position or expertise, (2) political connections, and (3) persistence.⁷ Without the presence of a policy champion, many policy changes would never occur, or good policies would never be implemented.

Our research illustrated the importance of having a champion to raise awareness of an issue or policy and to push for change. Such champions can be either policy makers themselves or agency staff. The need for a strong, visible advocate for change, however, presents a paradox. A policy champion may help others become more aware of the need to address a certain problem, such as obesity, yet policy makers may be reluctant to take on an issue that one of their colleagues has strongly embraced as his or her own. In Montgomery County,

several people mentioned a council member who was a strong advocate for childhood obesity. Although this person was key to championing the cause in the county, he was concerned that his gusto may have discouraged others to take on the cause as well. “It may be dissuading my colleagues by saying it’s my issue. If I want to get majority support for efforts to deal with it, it can’t be me out front all the time.”

Although commitment, capacity, intergovernmental coordination, and the presence of champions were factors that seemed to influence the policy implementation in Montgomery County, some factors, such as knowledge and awareness, were less important than we expected. In fact, in some cases, increasing opportunities for physical activity seemed to be an inadvertent or even accidental impact of certain policies or plans—some things happen even without intent. For example, planners may take steps to encourage more people to use bike paths as a means of reducing traffic congestion on roads, but not explicitly to increase physical activity. This raises an interesting question: Could a policy be more effective if the intent was deliberate? Still, knowledge was important in some areas: Without knowledge or awareness of an issue, policy champions may find it difficult to further their cause.

Conflict emerged as an important factor linked to the passage and implementation of particular policies. In Montgomery County, conflict with citizens arose frequently as not-in-my backyard reactions to siting facilities such as sidewalks, or with advocacy groups who opposed the construction of a bicycle shoulder because it increased the area of impervious surface. This is consistent with literature on facility siting,^{23–25} planning,²⁶ and the environmental movement,^{27–29} where individuals or advocacy groups oppose specific actions as a matter of principle or personal interest. Although the reactions may hinder implementation speed, they deserve adequate attention from planners and policy makers. Also, when trade-offs exist among competing, related principles, implementation may be hampered.²⁸

Overall, the factors we identified (eg, commitment, capacity, and champions) proved relevant in understanding the implementation of policies in Montgomery County, particularly as such policies relate to physical activity. Our findings were limited, however, by our analysis of policy implementation at a single site, Montgomery County, which is not a typical county. In addition to being one of the most affluent counties in the nation, Montgomery County boasts a long tradition of, and commitment to, planning. Although the county’s plethora of policies makes it an ideal place to conduct studies of policy implementation, our findings may not extend readily to counties that have a different set of socioeconomic and political characteristics and that lack such a rich policy and planning environment.

Also, while we conducted interviews with 26 key informants, our findings may have been different had we selected a different set of people to interview. Finally, we conducted a broad overview of policies and the factors that affect their implementation, so our findings may lack the depth of other studies that focus on the implementation of a single policy.

Future research could test whether the factors we identified as important in shaping the policy implementation in Montgomery County play a similar role in other counties. It could also seek to substantiate our findings by using other methods or sources, for example, a survey, or by asking key informants to reflect on our findings.

● Conclusions

Our exploratory analysis of the policy implementation in Montgomery County, Maryland, has led us to the following conclusions.

Supportive local policies and plans are crucial to promoting physical activity. However, it is not enough just to adopt policies—implementation matters. And, as we have found, the implementation of policies is influenced by several factors, such as staff commitment and the presence of a champion. For example, our research illustrated that Montgomery County officials adhere to local policies and plans when reviewing development proposals or plans from other agencies. This stems from the strong local culture of planning and a widespread commitment to plans. County health officials should be actively involved in the planning process, ensuring that policies in the local comprehensive plan, parks and recreation plan, and transportation plan support physical activity.

In addition, as we have stated previously, successful policy implementation often depends on an advocate or a champion who can help secure necessary resources and motivate staff to create opportunities for physical activity. This would suggest that county health officials become strong advocates for policies and programs that encourage greater physical activity.

Institutional mechanisms or levers such as mandatory referral, development review, and an annual growth policy can facilitate the implementation of policies and projects that increase physical activity. County health officials should look for those opportunities, those levers, to build or augment existing facilities (eg, bike paths or walking trails), particularly where government resources are scarce. Montgomery County officials were adept at finding ways to build or improve existing facilities, often by piggybacking facilities on to larger projects undertaken by developers or a state agency.

Not all local elected officials and decision makers were aware of the need to increase physical activity. To be successful in promoting greater physical activity locally, county health officials need to inform those in their own agency or office about the importance of physical activity and also get the word out to elected officials and those in other county departments, such as parks and recreation.

Finally, coordination across government agencies may be necessary to provide the resources or facilities needed to promote physical activity. In Montgomery County, intergovernmental coordination helped different agencies achieve together what they could not by themselves. This suggests that, for county health officials, building bridges with planners, schools, or parks and recreation officials could be a successful implementation strategy.

REFERENCES

1. Pate R, Pratt M, Blair S, et al. Physical activity and public health: a recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA*. 1995;273:402–407.
2. Centers for Disease Control and Prevention. Physical activity and good nutrition: essential elements to prevent chronic diseases and obesity. <http://www.cdc.gov/nccdphp/publications/aag/dnpa.htm>. Published 2005. Accessed January 30, 2006.
3. Robbins LT, Morandi L. *Promoting Biking and Walking: The Legislative Role*. Washington, DC: National Conference of State Legislatures; 2002.
4. Mazmanian D, Sabatier P. *Effective Policy Implementation*. Lexington, MA: Lexington Books; 1981.
5. Mazmanian D, Sabatier P. *Implementation and Public Policy*. Glenview, IL: Scott Foresman; 1983.
6. Dillon R, Quinn R. Interorganizational systems. *Public Product Rev*. 1980;4:63–83.
7. Kingdon J. *Agendas, Alternatives and Public Policies*. New York: HarperCollins; 1995.
8. Berke P. Reducing natural hazard risks through state growth management. *J Am Plann Assoc*. 1998;64(1):76–87.
9. May P, Burby R, Ericksen N, et al. *Environmental Management and Governance: Intergovernmental Approaches to Hazards and Sustainability*. New York: Routledge; 1996.
10. Linden R. *Working Across Boundaries*. San Francisco: Jossey-Bass; 2002.
11. Librett J, Yore M, Schmid T. Although important, there is a paucity of literature examining the correlates of effective policy interventions addressing physical activity behaviors. *Am J Public Health*. 2003;93(9):1399–1403.
12. Godschalk D. Montgomery County: a pioneer in land supply monitoring. In: Moudon A, Hubner M, eds. *Monitoring Land Supply With Geographic Information Systems: Theory, Practice, and Parcel-Based Approaches*. New York: Wiley; 2000:97–117.
13. Levinson D. The limits to growth management: development regulation in Montgomery County, Maryland. *Environ Plann B Plan Des*. 1997;5:689–707.

14. Yin R. *Case Study Research*. 3rd ed. Thousand Oaks, CA: Sage; 1994.
15. Schmid T, Pratt M, Howze E. Policy as intervention: environmental and policy approaches to the prevention of cardiovascular disease. *Am J Public Health*. 1995;85(9):1207–1211.
16. Schmid T, Pratt M, Witmer L. A framework for physical activity policy research. *J Phys Act Health*. 2006;3(suppl 1):S20–S29.
17. Rodriguez D, Godschalk D, Norton R. *The Connection Between Land Use and Transportation in Land Use Plans*. Final Report. Chapel Hill: North Carolina Department of Transportation; 2004. Project No. 2003-16.
18. Miles M, Huberman A. *An Expanded Sourcebook: Qualitative Data Analysis*. Thousand Oaks, CA: Sage; 1994.
19. Berke P, French S. The influence of state planning mandates on local plan quality. *J Plann Educ Res*. 1994;13:237–250.
20. Schachter K, Cohen S. From research to practice: challenges to implementing national diabetes guidelines with five community health centers on the U.S. Mexico border. *Prev Chronic Dis*. 2005;2(1):A17.
21. Lantz P, Orians C, Liebow E, Joe J, Burhansstipanov L, Kenyon K. Implementing women's cancer screening programs in American Indian and Alaska Native populations. *Health Care Women Int*. 2003;24(8):674–696.
22. Goodson P, Murphy M, Evans A, Meyer B, Gottlieb N. Maintaining prevention in practice: survival of PPIP in primary care settings. *Am J Prev Med*. 2001;20(3):184–189.
23. Wolsink M. Policy beliefs in spatial decisions: contrasting core beliefs concerning space-making for waste infrastructure. *Urban Stud*. 2004;41(13):2669–2690.
24. Davies A. Incineration politics and the geographies of waste governance: a burning issue for Ireland? *Environ Plann C Gov Policy*. 2005;23(3):375–397.
25. Minchart D, Neeman Z. Effective siting of waste treatment facilities. *J Environ Econ Manage*. 2002;43(2):303–324.
26. Takahashi LM, Garber SL. Controversial facility siting in the urban environment. *Environ Behav*. 1998;30(2):184–215.
27. Aarset B. Pitfalls to policy implementation: controversies in the management of a marine salmon-farming industry. *Ocean Coastal Manag*. 2002;45(1):19–40.
28. Avant D. Conserving nature in the state of nature: the politics of INGO policy implementation. *Rev Int Stud*. 2004;30(3):361–382.
29. Swanson, KE, Kuhn, RG, Xu W. Environmental policy implementation in rural China: a case study of Yuhang, Zhejiang. *Environ Manag*. 2001;27(4):481–491.