

Commentary

Building Capacity to Prevent and Control Chronic Disease in Underserved Communities: Expanding the Wisdom of WISEWOMAN in Intervening at the Environmental Level

ANTRONETTE K. YANCEY, M.D., M.P.H.

THE WELL-INTEGRATED SCREENING AND EVALUATION for Women Across the Nation (WISEWOMAN) health promotion projects are groundbreaking in that they expand on an existing cancer control infrastructure to address additional chronic diseases and disease disparities. The WISEWOMAN approach is exciting because it begins to dismantle the territorial, disease-circumscribed silos that have long prevented optimal utilization of scarce public health resources in the face of an ever-increasing disease burden and service demand. Given the lack of long-term success experienced by most large population-based cardiovascular disease (CVD) prevention projects,^{1,2} the WISEWOMAN program's focus on higher-risk subgroups, such as minority and low literacy populations, is indicated. The program represents a substantive effort by federal agencies to eliminate ethnic disparities in health status and disease outcomes. The WISEWOMAN initiative reflects the high standards for study inclusiveness (representation of understudied ethnic and socioeconomic groups) and intervention exportability³ required to effectively address health disparities. To realize the full potential of this initiative to improve health status in underserved communities, however, expansion of efforts to intervene at the environmental level will be critical.

There is a paucity of high-quality data regarding the effectiveness of CVD risk reduction interventions targeting or including substantive

numbers of people of color or people from low-income backgrounds. Interventions may be targeted at the individual level (the focus of the overwhelming majority of chronic disease prevention and health promotion studies to date, including WISEWOMAN) or at environmental change. The sparse literature on either individually or environmentally directed interventions in underserved communities represents a major obstacle in developing effective chronic disease control policies and programs, particularly in the face of the increasing disease burden associated with the growing ethnic and cultural diversification of the United States and the aging of the American population. The WISEWOMAN studies published in this Supplement help to address this evidentiary gap. The projects described here represent great breadth in regional setting and cultural diversity and in the array of intervention approaches and evaluation methodologies used.⁴ An earlier review of 32 individually targeted nutrition and physical activity interventions to reduce CVD risk in healthcare settings⁵ found only 1 non-WISEWOMAN study⁶ that included a substantial proportion of people of color. Two additional reviews of the literature on ethnically inclusive, individually targeted, weight-related lifestyle interventions^{7,8} identified just 20 studies, most characterized by small sample size, high study attrition, and few long-term (≥ 6 months) follow-up data.

Considering the escalating epidemics of obe-

sity and sedentariness and their contribution to CVD disparities, weight-related lifestyle change is critical in the primary prevention of CVD. It is striking that nearly three quarters of the overall sample of women screened in the WISEWOMAN projects were overweight or obese, including a 60% obesity rate in one location, twice the national average.^{9,10} Moreover, body mass index (BMI) emerged as one of two CVD indicators clustering spatially among WISEWOMAN participants in five states¹¹ and one of the individual characteristics explaining racial/ethnic disparities in baseline CVD risk factor profiles.¹² In the latter study, BMI was the more malleable of the individual characteristics identified, compared with education or family income. It is noteworthy that although WISEWOMAN projects (those for which outcome data are available) have not produced weight losses, they have succeeded in fostering weight maintenance at 1 year,^{13–15} stemming the secular trend of weight gain that is particularly pronounced in low-income populations. This seemingly modest effect has the potential to create a substantial public health impact,³ given the risk profile and potential size of the WISEWOMAN population (i.e., 1.75 million women screened to date by the National Breast and Cervical Cancer Early Detection Program [NBCCEDP], which provides the infrastructure for WISEWOMAN).

The WISEWOMAN projects' focus on individual behavior change ultimately limits their ability to substantively influence CVD disparities, however, because sustainable change requires multi-level intervention.^{13,16,17} Increasingly, WISEWOMAN and other chronic disease prevention initiatives must consider the contextual nature of weight-related lifestyle, that is, our obesogenic postmodern American environment.^{18,19} Obesogenic environments are characterized by pervasive and culturally tailored commercial advertising, marketing, and promotion by the food industry; a smorgasbord of relatively inexpensive, readily available, highly palatable, energy-dense, but nutrient-poor foods; and a plethora of transportation machines and labor-saving devices that, combined with an underinvestment in mass transit, have engineered most of the obligatory physical activity out of daily life.²⁰ Although the focus of the physical activity and healthy nutrition promotion fields is gradually shifting to include more structurally targeted interventions that address the sociocultural, polit-

ical, economic, and physical environments,²¹ systematic investigation in this relatively new area of endeavor understandably lags far behind that for biological and behavioral strategies.^{19,22,23} Environmental intervention is particularly indicated in lower-income communities and communities of color, where excess environmental risk is concentrated.^{8,24} In fact, Finkelstein et al.¹² concluded from their cross-sectional analysis of WISEWOMAN baseline data that community-wide intervention may be necessary because community-level variables are driving many CVD-related ethnic disparities.

To fully articulate the contextual background for ongoing and future WISEWOMAN projects, data from community-level or population-based approaches to risk reduction are needed. My colleagues and I very recently completed a review of studies of population-based interventions targeting communities of color or including sufficient samples to permit ethnic-specific analyses.²⁵ Only 23 studies conducted between January 1970 and May 2003 were identified. As in some of the WISEWOMAN studies and other individual-level interventions targeting underserved and understudied groups, characteristics of the 23 community-level interventions included building coalitions and involving communities from study inception, targeting captive audiences already congregated for other purposes, mobilizing social networks, and tailoring culturally specific messages and messengers. Fewer than half of the studies presented outcome evaluation data, however, and statistically significant effects were few and modest. The best available data speak more about how to engage and retain people of color in these interventions than about how to achieve and sustain weight loss, regular engagement in physical activity, or improved diet. We concluded that advocacy efforts should be directed at increasing the visibility and budget priority of community-level interventions for people of color, particularly at the state and local levels.

Although the WISEWOMAN program is currently federally mandated to spend 60% of its funds on individually oriented interventions (with the balance mostly absorbed by the costs of administration and evaluation), it is clear that future iterations of WISEWOMAN must better incorporate environmental-level or structural-level (systems change) intervention. This may be accomplished, in part, through more consistent partnering with community groups and other

agencies. Partnerships and collaboration are natural areas for WISEWOMAN expansion, in that considerable community engagement and support have been mustered to effectively mount these research efforts in historically exploited and socioeconomically marginalized populations. Multisectoral partnering to create more supportive environments is, in fact, a prominent feature of many of the WISEWOMAN success stories highlighted by Lewis et al.,²⁶ who assert the stories' utility in more broadly disseminating WISEWOMAN best practices. For example, one local health department-based project partnered with a local private, nonprofit organization (a YMCA) to provide scholarships for WISEWOMAN participants to use the fitness facilities (North Carolina WISEWOMAN project).²⁷ Another partnered with an Indian village to offer discounts to the village fitness center (Southeast Alaska Regional Health Consortium [SEARHC]).²⁷ The South Dakota project partnered with the State Parks and Recreation Department to provide free annual park admission stickers to WISEWOMAN participants (South Dakota WISEWOMAN project, personal communication, September 22, 2003). In other instances of partnering across societal sectors, a civic organization (the League of Women Voters) was engaged by one of the projects to provide low-cost walking shoes to WISEWOMAN participants (Michigan WISEWOMAN project),²⁷ and walking clubs were organized to support existing community walking events (Southcentral Foundation in Alaska, personal communication, April 30, 2003).

Strengthening linkages among public health agencies, community-based organizations, and academic institutions is particularly necessary (e.g., the Forsyth County NC WISEWOMAN project),²⁷ in that each entity embodies complementary and synergistic roles and missions in the practice of public health. Public health agencies have consistent funding streams (however inadequate) and mandates for improving the health of entire geographically defined populations. Community-based organizations exist to represent the preferences and respond to the needs of their targeted populations; they may mediate between the needs of individuals in a specific locale and institutional bureaucracies charged with addressing those needs at a societal level to achieve certain outcomes.²⁸ Academic institutions are repositories of scientific expertise, are measured by research grant and publication productivity,

and have a central focus on educational activities. With the increasing attention to, resources available for, and validation of academic public health practice and community-based participatory research, particularly within schools of public health, the applied research and training opportunities presented by WISEWOMAN-type projects could fuel further investment by universities, federal agencies, and foundations.

It may also be important simply to do a better job of capturing intervention effects at these broader levels, as several WISEWOMAN projects likely influenced social and community networks.^{13,29-31} Better instruments were developed recently to assess organizational support for healthy lifestyles.³² As Finkelstein et al.³³ note, however, these evaluation efforts can be quite costly and challenging. A part of the solution is government investment in expanded surveillance to provide risk behavior and disease prevalence estimates for smaller geographic areas (e.g., ZIP codes or Census tracts). External sources of evaluation data, capturing secular trends and presumably intervention effects, would decrease the burden of research participation on community-based organizations and local health departments, allowing them to focus on the service missions that motivate their involvement.

Obviously, little guidance and few resources are available, at present, to direct efforts to influence the environment in underserved communities. However, if a central premise of WISEWOMAN is preserved, namely, building on existing community infrastructure, organizational settings will remain integral to service delivery. These settings (e.g., government agencies, clinics, social services organizations, churches, schools) provide a key leverage point to support behavior change within existing resources.²¹ Organizations may use their physical and social infrastructures to make engaging in healthy eating and active living the easier choices and sedentariness and poor nutritional habits the harder ones. Similar to the successful evolution of tobacco control efforts, which have shifted their focus from the individual level to the organizational and policy levels,³⁴ obesity control efforts should begin to focus on changing organizational practices and policies so that physical activity and healthy food choices are incorporated into workplace routines. Following the tobacco control model, adoption of these practices should generate the political will and popular support neces-

sary for aggressive legislative policy change and compliance.

There are numerous examples of environmentally oriented organizational practices and policies that can be used to promote healthy/fit lifestyles. In contrast to measures that rely primarily on individual motivation or voluntary programmatic participation, genuine environmental policies and practices include the strategies listed below, promulgated by our UCLA School of Public Health Physical Activity Promotion and Obesity Prevention and Control Collaborative. The strategies have largely been incorporated into the recommendations for promoting physical activity and healthy eating in the workplace recently released by the California Department of Health Services.³⁵ Other resources (e.g., the University of Minnesota's *Guidelines for Offering Healthy Foods at Meetings, Seminars, and Catered Events*, the American Cancer Society's *Meeting Well* guidelines, and the CDC's *StairWELL to Better Health* design provisions) provide further examples.³⁵

- Including healthy food choices at meetings, events, or other gatherings at which refreshments are served
- Implementing 10-minute exercise or movement breaks in meetings or gatherings lasting 1 hour or longer (e.g., school board and PTA meetings, gospel choir rehearsals, continuing education sessions, adult basic education or English as a second language [ESL] classes, neighborhood association meetings, city council hearings) and at a certain time of the workday
- Placing bowls of fresh fruit in reception or central congregating areas
- Offering healthy and competitively priced food choices in vending machines, cafeterias, and on-site food vendor selections
- Substituting snack packs of raisins, nuts, or other healthy alternatives for organizational leaders' candy or cookie jar contents
- Installing water fountains or dispensers
- Posting stair prompts (e.g., signage, riser banners) and using other means of encouraging stair usage (e.g., slowed elevators, improved lighting, wall artwork, organizational leaders' modeling of the behavior)
- Hosting walking meetings
- Encouraging casual attire at organizational functions compatible with physical activity (e.g., discouraging neckties and high-heeled shoes)

- Changing organizational culture to promote and reward integration of physical activity into the workday or routine conduct of organizational business (e.g., standing up at intervals during meetings, doing seated airline exercises, taking short walking breaks, exercising at lunch) and eliminate incentives for being chained to one's desk
- Including language in subcontracts that mandates or provides incentives for subcontractor organizations to adopt these healthy/fit organizational practices and policies

Advocacy in communities may also be directed at:

- Working with catering trucks or other vendors supplying food for functions or events to encourage them to offer low-cost, healthy choices, with an emphasis on fruits and vegetables
- Engaging in asset mapping to create community resource directories of markets with affordable fresh produce (North Carolina WISE-WOMAN project, personal communication, February 2, 2004) or low-cost fitness programs or facilities
- Building coalitions to establish farmers' markets in nonaffluent neighborhoods
- Engaging elected officials and media professionals in efforts to improve lighting, institute safety patrols, trim foliage, repair sidewalks, and remove debris to encourage walking on streets and in parks
- Leveraging influence with popular local restaurants to offer healthy food choices, promote nutritious specials at reduced cost, and provide coupons for healthy options
- Educating legislators and community opinion leaders about public policies that encourage fitness-enhancing behaviors (e.g., liability waivers to protect schools and other organizations that provide time and space for physical activity) and promote nutrition labeling in fast food establishments and food service standards in public buildings

Given the growing consensus that individual-level interventions alone will be unable to stem the epidemic of obesity and its chronic disease comorbidities, boisterous leadership is needed to ensure that organizational practices of the type described are mandated, adopted, sustained, and rigorously evaluated. Implementation of these

practices and policies may increase the visibility of the epidemic and the priority placed on addressing it at the grass-roots level and among decision makers. The practices and policies may also assist in generating the popular support and political will to drive federal regulatory changes and the introduction and passage of supportive legislation. It is important to remember that funding agencies (especially governmental) required smoke-free workplace policies long before evidence confirmed their effectiveness in sustaining long-term decreases in secondhand smoke exposure or smoking and well before legislative policy-mandated compliance.

WISEWOMAN is positioned to play an important role in the shift toward environmental interventions by leading by example or walking the talk. If federal program mandates are modified to reflect current scientific understanding of weight-related lifestyle change (i.e., the necessity of environmental-level interventions) and program support is expanded to recognize the escalation of the obesity and diabetes epidemics in underserved communities, WISEWOMAN is poised to substantively influence efforts to address chronic disease disparities for a long time to come.

REFERENCES

1. Goodman RM, Wheeler FC, Lee PR. Evaluation of the Heart To Heart Project: Lessons from a community-based chronic disease prevention project. *Am J Health Promot* 1995;9:443.
2. Winkleby MA. The future of community-based cardiovascular disease intervention studies. *Am J Public Health* 1994;84:1369.
3. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *Am J Public Health* 1999;89:1322.
4. Viadro CI. Introduction: Taking stock of WISEWOMAN. *J Wom Health* 2004;13:480.
5. Wilcox S, Parra-Medina D, Thompson-Robinson M, Will J. Nutrition and physical activity interventions to reduce cardiovascular disease risk in health care settings: A quantitative review with a focus on women. *Nutr Rev* 2001;59:197.
6. Hyman DJ, Ho KS, Dunn JK, Simons-Morton D. Dietary intervention for cholesterol reduction in public clinic patients. *Am J Prev Med* 1998;15:139.
7. Taylor WC, Baranowski T, Young DR. Physical activity interventions in low-income, ethnic minority, and populations with disability. *Am J Prev Med* 1998;15:334.
8. Kumanyika S. Obesity treatment in minorities. In: Stunkard AJ, ed. *Obesity: Theory and therapy*, 3rd ed. New York: Guilford Publications, Inc. 2002:xiii, 377.
9. Will JC, Farris RP, Sanders CG, Stockmyer CK, Finkelstein EA. Health promotion interventions for disadvantaged women: Overview of the WISEWOMAN projects. *J Wom Health* 2004;13:484.
10. Flegal KM, Carroll MD, Ogden CL, Johnson CL. Prevalence and trends in obesity among U.S. adults, 1999–2000. *JAMA* 2002;288:1723.
11. Mobley LR, Finkelstein EA, Khavjou OA, Will JC. Spatial analysis of body mass index and smoking behavior among WISEWOMAN participants. *J Wom Health* 2004;13:519.
12. Finkelstein EA, Khavjou OA, Mobley LR, Haney DM, Will JC. Racial/ethnic disparities in coronary heart disease risk factors among WISEWOMAN enrollees. *J Wom Health* 2004;13:503.
13. Staten LK, Gregory Mercado KY, Ranger-Moore J, et al. Provider counseling, health education, and community health workers: The Arizona WISEWOMAN project. *J Wom Health* 2004;13:547.
14. Will JC, Massoudi B, Mokdad A, et al. Reducing risk for cardiovascular disease in uninsured women: Combined results from two WISEWOMAN projects. *J Am Med Assoc* 2001;285:161.
15. Rosamond WD, Ammerman AS, Holliday JL, et al. Cardiovascular disease risk factor intervention in low-income women: The North Carolina WISEWOMAN project. *Prev Med* 2000;31:370.
16. Jacobs AD, Ammerman AS, Ennett ST, et al. Effects of a tailored follow-up intervention on health behaviors, beliefs, and attitudes. *J Wom Health* 2004;13:557.
17. Stokols D. Translating social ecological theory into guidelines for community health promotion. *Am J Health Prom* 1996;10:282.
18. Kumanyika SK. Minisymposium on obesity: Overview and some strategic considerations. *Annu Rev Public Health* 2001;22:293.
19. Swinburn B, Egger G, Raza F. Dissecting obesogenic environments: The development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Prev Med* 1999;29:563.
20. French SA, Story M, Jeffery RW. Environmental influences on eating and physical activity. *Annu Rev Public Health* 2001;22:309.
21. Booth SL, Sallis JF, Ritenbaugh C, et al. Environmental and societal factors affect food choice and physical activity: Rationale, influences, and leverage points. *Nutr Rev* 2001;59:S21; discussion S57–65.
22. King AC. How to promote physical activity in a community: Research experiences from the U.S. highlighting different community approaches. *Patient Educ Couns* 1998;33(1 Suppl):S3.
23. Alcala R, Bell RA. Promoting nutrition and physical activity through social marketing: Current practices and recommendations. Davis, CA: Center for Advanced Studies in Nutrition and Social Marketing, University of California, Davis, 2000.

24. Galbally RL. Health-promoting environments: Who will miss out? *Aust NZ J Public Health* 1997;21:429.
25. Yancey AK, Kumanyika SK, Ponce N, McCarthy WJ, Fielding JE, Leslie JP. Population-based interventions engaging communities of color in healthy eating and active living: a review. *Preventing Chronic Disease* 2004;1(1) [serial online].
26. Lewis SD, Johnson VR, Farris RP, Will JC. Using success stories to share knowledge and lessons learned in health promotion. *J Wom Health* 2004;13:616.
27. DHHS. WISEWOMAN works: A collection of success stories from program inception through 2002. Atlanta, GA: Centers for Disease Control and Prevention; 2003. Available at www.cdc.gov/wisewoman
28. Ribisl K, Humphreys K. Collaboration between professionals and mediating structures in the community: Toward a "third way" in health promotion. In: Shumaker SA, Schron E, Ockene J, McBee W, eds. *The handbook of health behavior change*, 2nd ed. New York: Springer Publishing Co., 1998:xii, 607.
29. Jilcott SB, Macon ML, Rosamond WD, et al. Implementing the WISEWOMAN program in local health departments: Staff attitudes, beliefs, and perceived barriers. *J Wom Health* 2004;13:598.
30. Mays GP, Hesketh HA, Ammerman AS, Stockmyer C, Lewis Johnson T, Bayne-Smith M. Integrating preventive health services within community health centers: lessons from WISEWOMAN. *J Wom Health* 2004;13:607.
31. Witmer JM, Hensel MR, Holck PS, Ammerman AS, Will JC. Heart disease prevention for Alaska Native women: A review of pilot study findings. *J Wom Health* 2004;13:569.
32. Golaszewski T, Barr D, Pronk N. Development of assessment tools to measure organizational support for employee health. *Am J Health Behav* 2003;27:43.
33. Finkelstein EA, Wittenborn JS, Farris RP. Evaluation of public health demonstration programs: The effectiveness and cost-effectiveness of WISEWOMAN. *J Wom Health* 2004;13:625.
34. Daynard RA. Lessons from tobacco control for the obesity control movement. *J Public Health Policy* 2004;24:291.
35. Backman DR, Carman JS, Aldana SG. *Fruits and vegetables and physical activity at the worksite: Business leaders and working women speak out on access and environment*. Sacramento, CA: California Department of Health Services, 2004.

Address reprint requests to:
Antronette K. Yancey, M.D., M.P.H.
Associate Professor
Department of Health Services
UCLA School of Public Health
650 Charles Young Drive South
Los Angeles, CA 90095

E-mail: ayancey@ucla.edu