

Citizen-Centered Health Promotion

Building Collaborations to Facilitate Healthy Living

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Abstract: Unhealthy behaviors, notably tobacco use; unhealthy diets; and inadequate physical activity are major contributors to chronic disease in the U.S. and are more prevalent among socioeconomically disadvantaged groups. Differences in the prevalence of unhealthy behaviors among communities with different physical, social, and economic resources suggest that contextual environmental factors play an important causal role. Yet health promotion interventions often are undertaken in isolation and with inadequate attention to these holistic social and economic influences on lifestyle. For example, clinicians' advice to patients to stop smoking or lose weight can help motivate people to change behaviors, but their ability to take subsequent action can benefit from coordination with community-based and public health programs that offer intensive counseling services, and from modified environmental conditions to facilitate behavior change where people live, work, learn, and play.

Reshaping these environmental conditions to support healthier living is the subject of six recommendations from the Robert Wood Johnson Foundation Commission to Build a Healthier America. Changing the conditions of daily life to make them conducive to healthy behaviors—what is here called citizen-centered health promotion—requires a concerted effort by clinical, educational, business, civic and governmental partners within communities. Linkages among clinical practices and community-based programs have been demonstrated to be effective, but moving from demonstration projects to sustainable community collaborations nationwide will require a proactive effort to establish the necessary infrastructure and financing.

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Introduction

Each year more than 1.5 million people in the U.S. die from chronic diseases such as heart disease, cancer, emphysema, stroke, and diabetes, each a major cause of morbidity and healthcare spending.¹ Analyses typically attribute a large proportion of these illnesses (approximately 80% of all cases of heart disease and type 2 diabetes and 40% of all deaths in the U.S.) to health behaviors, such as tobacco use and physical inactivity, and assign a relatively smaller proportion to socioeconomic factors and the environment.^{2,3} For example, McGinnis and colleagues estimated that social circumstances and environmental exposures accounted for 15% and 5%, respectively,

of premature deaths.⁴ Yet the distinction between health behaviors and the social environment is somewhat arbitrary because social and environmental factors play a large role in influencing healthy behaviors and exposure to modifiable risk factors (e.g., obesity).^{5,6}

In what Frieden⁷ describes as a “health impact pyramid,” interventions that address socioeconomic conditions at the base of the pyramid are likely to achieve greater effects on population health than clinical actions taken against obesity and other behavioral risk factors.

In its investigations of strategies for improving population health in the U.S., the Robert Wood Johnson Commission to Build a Healthier America (the commission) examined behavioral risk factors while recognizing the influences that social and economic conditions have on people's choices and behaviors.⁸ The commission advised public and private-sector policymakers to foster health-promoting environments, reiterated the importance of continued efforts to reduce smoking, and made recommendations that addressed economic, neighborhood, and school factors that influence nutrition and physical activity, as follows:⁹

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1. Integrate safety and wellness into every aspect of community life (schools, workplaces, neighborhoods).
2. Become a smokefree nation. Eliminating smoking remains one of the most important contributions to longer, healthier lives.
3. Create public–private partnerships to open and sustain full-service grocery stores in communities without access to healthful foods.
4. Fund and design WIC and SNAP (food stamps) programs to meet the needs of hungry families for nutritious food.
5. Feed children only healthy foods in schools.
6. Require all schools (K–12) to include time for all children to be physically active every day.

This article reviews the findings that motivated these six recommendations, which focus on transforming living conditions to foster healthy behaviors. A focus on environmental supports and obstacles to healthy behaviors is essential for a **citizen-centered** approach to health promotion. This approach recognizes that health behaviors are a function of the daily life conditions that citizens experience, and not just of their personal decisions or clinical encounters as patients. Doherty et al.¹⁰ have previously referred to “citizen health care,” by which they meant the engagement of citizens as “coproducers” of their care experience. Citizen-centered health promotion, as used here, is not about health care or the experience of patients. It refers to a coordinated multisector community effort to bring about a way of life—at home, work, and school—that makes it easier for members of a community to adopt and maintain healthful practices.

This paper argues that efforts to change the conditions of daily life require coordination among clinical, educational, business, civic, and governmental partners within communities. First, a critique is presented of the assumptions about personal choice that underlie many interventions to affect changes in health behaviors. The examples of tobacco and obesity are then used to illustrate the importance of environmental influences on the relevant behaviors. Finally, consideration is given to the respective roles of clinically based and community-level efforts to address obesity, and this example is used to argue for collaborative approaches and to underscore implementation challenges.

Two other articles in this supplement take up complementary commission recommendations that address the importance of both early life experience as well as housing and community design for promoting lifelong health.^{11,12} These additional recommendations also embrace a citizen-centered approach to health promotion.

The Realities of Personal Choice

For many years, the prevailing model motivating U.S. clinical and public health strategies to foster healthy behaviors has been that of a rational agent freely choosing a particular action or object of consumption.^{13,14} Health promotion strategies and public health campaigns have focused on educating people about the risks associated with harmful behaviors and the benefits of smoking cessation, weight loss, healthy diets, physical activity, safe sex, injury prevention, and other healthy practices. Clinicians have been encouraged to systematically identify patients with unhealthy behaviors and to encourage lifestyle change.

The actions that people take after receiving such advice—whether they continue to engage in unhealthy behaviors, modify their lifestyles, or experience relapses—are on one level a matter of “personal responsibility,” motivation, and self-discipline. No one forces people to consume large portions of food, sit inactively, or smoke cigarettes. Many people are able to muster the determination to alter their daily routines, overcome dependencies to abandon unhealthy practices, and take actions to prevent illness. However, the notion that, for all people, health behaviors are entirely a matter of personal choice ignores the widely variable circumstances in which lives are lived and choices made.¹⁴

The larger socioecologic model of health influences and theories of behavioral change acknowledge that personal choices are shaped in multiple ways by contextual cues, opportunities, and constraints imposed by the environment in which people live, work, study, and play.^{14–16} These conditions are, in turn, the result of larger social values and public policies. Social and material environments can place major impediments in the paths of people attempting to lead healthier lives.^{12,17}

For example, people may know that they should eat fresh fruits and vegetables and small portions but may find them unaffordable, inaccessible, or marginalized by inexpensive fast foods promoted by advertising. Inactive people may know that exercise is important, but their jobs may require long commutes and sedentary work practices. Parents may want their children to eat nutritiously and play outdoors but cannot control school lunch menus or the hours set by the school board for physical activity, nor the safety of the streets and sidewalks where they live. They cannot always counteract the steady stream of advertising messages, peer pressure, movies, and other media that promote unhealthy foods, cigarettes, alcohol, and enticing entertainment products (e.g., screen devices) that discourage physical activity. To ignore these realities is to overlook the larger causal context for unhealthy behaviors, as the following examples illustrate.

Tobacco Use and Obesity: The Role of Environmental and Living Conditions

The reduction in tobacco use among those 18 and older from 42% in 1965 to 20% in 2007 probably owes less to clinical counseling or media messages that tobacco is “harmful to your health”—what might be called “information therapy”—than to public policies and environmental reforms (e.g., excise taxes and indoor smoking bans), and to shifting cultural norms that fostered both the prevention and cessation of smoking.^{18,19} However, smoking prevalence is much higher in disadvantaged populations (e.g., adults without a college education) than among those with greater advantages (Figure 1).¹⁸ This is partly due to reduced access to quality resources for prevention and treatment²⁰ but also to unfavorable environmental factors. Socially and economically disadvantaged neighborhoods experience a higher prevalence of tobacco use in association with higher concentrations of tobacco outlets and targeted industry advertising and marketing to minorities, women and youth, and the gay community.^{21–23} Blue-collar workers are less likely to have tobacco-free workplaces.²⁴

Similarly, the rising prevalence of obesity in adults and children, a major risk factor for a variety of health conditions, is a product of an obesogenic environment.^{25,26} In 2007–2008, 68% of U.S. adults aged ≥20 years were overweight or obese (BMI ≥25)²⁷—double the levels of 1971–1974—but obesity is even more prevalent in minority populations.²⁸ For example, among women aged ≥20 years, the relative prevalence of overweight and obesity is 28% higher among non-Hispanic blacks (78%) and 24%

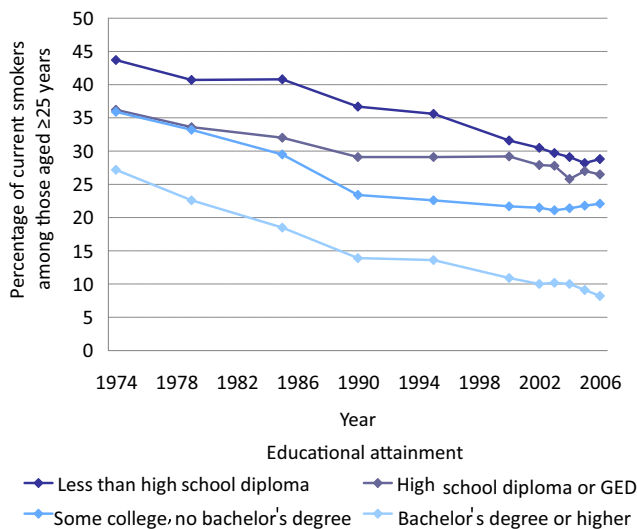


Figure 1. Disparities in cigarette smoking by educational attainment, 1974–2006

Source: National Center for Health Statistics. Health, United States, 2008 with Chartbook. Hyattsville MD: 2009

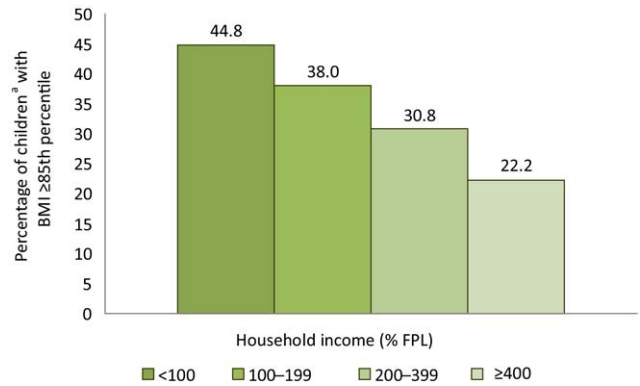


Figure 2. Percentage of overweight or obese children, by household income

^aAged 10–17 years

Source: 2007 National Survey of Children’s Health

higher among Hispanics (76%) than among non-Hispanic whites (61%).²⁷ Children in low-income households are more likely to be overweight or obese (Figure 2) and less likely to be physically active (Figure 3).²⁹ Both non-Hispanic black and Hispanic children have the highest prevalence of overweight/obesity (41%), compared with 27% among non-Hispanic white children.²⁹

These disparities underscore the importance of contextual factors in addressing modifiable risk factors. Advice from physicians or media campaigns to stem the epidemic have limited effectiveness without changing the conditions in disadvantaged populations where there is heightened exposure to adverse neighborhood food options, food insecurity, and schools that serve calorie-dense food and limit physical activity. Access to supermarkets and other stores with healthful foods, and reduced exposure to convenience stores and fast food restaurants, are associated with healthier diets and lower prevalence of obesity,^{30–36} but “food deserts” are more

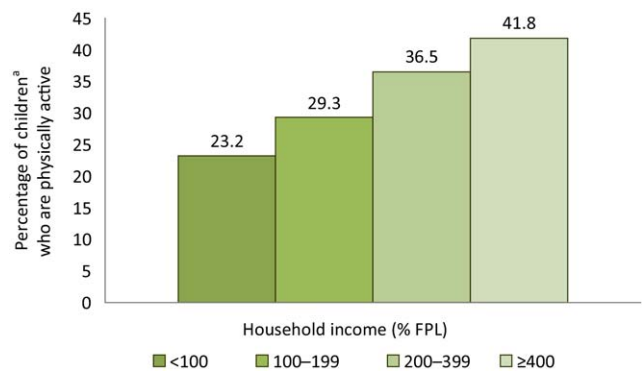


Figure 3. Percentage of physically active children, by household income

^aAged 6–17 years, physically active for at least 20 minutes 4–6 days a week

Source: 2007 National Survey of Children’s Health

common in rural, low-income, and minority neighborhoods.^{30,36} Minority populations are also subjected to targeted marketing of high-calorie foods and beverages.³⁷ Food insecurity encourages consumption of inexpensive, calorie-dense foods and among certain demographic groups is significantly associated with overweight status.^{38–40} In 2008, one in every seven U.S. households experienced food insecurity at some time during the year.⁴¹

In 2007, only one third of school-aged children were physically active.^{29,42,43} Schools with a larger proportion of economically disadvantaged or minority students are less likely to offer recess and physical education.⁴⁴ The school food environment is not always healthful, particularly for disadvantaged students. Recent discussion surrounding reauthorization of child nutrition legislation has revisited attention to unhealthful menu items in the National School Lunch Program and School Breakfast Program.⁴⁵ School menu items purchased through the U.S. Department of Agriculture Commodities Program, which schools find more affordable and more appetizing to students, are not always nutritious or prepared healthfully. Vending machines, on which many schools rely to supplement revenue and offset low federal meal reimbursement levels, are often stocked with calorie-dense foods and drinks (e.g., sodas). Only 25% of elementary and 12% of secondary school children choose healthy foods when fried foods and snacks are also available.⁴⁶

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The Limits of Counseling

These environmental factors set the context for the difficulties Americans face in their efforts to lose weight, eat well, and exercise,^{27,47} and explain why counseling, by itself, is of limited effectiveness in producing sustained behavior change. For two decades, the public has received a consistent message from both public service announcements and the medical community about the risks of obesity and the importance of healthy diets and physical activity. Public awareness, however, has not prevented the march of the obesity epidemic.

Some policymakers and public health leaders have reverted to old paradigms for solutions, such as assuming that public health crises are problems that individual physicians can solve. In response to the obesity epidemic, physicians have been admonished to do more in the hospital and clinic, and to redouble efforts to weigh patients and provide appropriate counseling. As recently as 2007, the American Medical Association and American College of Sports Medicine launched an initiative to encourage physicians to “prescribe” exercise to their patients.⁴⁸

Physicians can certainly play an important role in addressing unhealthy behaviors and, more broadly, in addressing social determinants of health.⁴⁹ Their advice is highly regarded by patients and cited as a major motivator by those who successfully quit smoking or lose weight.⁵⁰ However, the influence of physicians on health behaviors is limited. In its systematic review of published research, the U.S. Preventive Services Task Force found insufficient evidence that routine physician counseling about diet and physical activity is effective, in part because of the intensity requirements for effective counseling.^{51,52} Most physicians lack the time, skills, staff, resources, and reimbursement to offer intensive behavioral counseling. The need for healthcare professionals to collaborate with public health services and community organizations to help patients obtain the intensive assistance required to sustain behavior change is increasingly recognized.⁵³ Wagner’s Chronic Care Model emphasizes the need for this collaboration in the management of chronic illness,⁵⁴ as does Glasgow et al.⁵⁵ for health promotion generally. For example, systematic reviews demonstrate that although brief advice by physicians is beneficial in helping smokers to discontinue tobacco use, proactive telephone counseling, as offered by quitlines available in every state, may produce higher levels of abstinence.^{56,57}

Collaborative Models

Innovative programs have adopted collaborative approaches in which primary care clinicians build on their strongest assets—systematically identifying patients with unhealthy behaviors, offering brief advice, and assessing readiness to change—and then refer patients to outside resources for more intensive, long-term counseling and support. For example, clinicians in many states can fax referrals to the state quitline to arrange follow-up counseling for their patients who smoke. The most integrated programs include feedback systems whereby quitline staff provide progress reports for clinicians and request prescriptions for cessation medications. A randomized trial of a fax referral system with feedback documented a 12.5% increase in intensive counseling support for smokers.⁵⁸

In another study, a group of primary care practices reprogrammed their electronic medical record templates to help clinicians systematically identify patients who were either overweight/obese or were current smokers, offer brief advice, and offer patients an immediate electronic referral for more intensive counseling services.⁵⁹ Overweight/obese patients were offered free referrals to Weight Watchers classes in the community. The patients who chose this option, more than one third of whom had low incomes and limited education, reported short-term

benefits: 4 months after the referral they reported an average weight loss of 7 pounds, a 42% reduction in smoking, increased consumption of fruits and vegetables, and increased physical activity (30.6 vs 25.1 MET hours per week) (unpublished data).⁶⁰

This study was funded under the Robert Wood Johnson Foundation's Prescription for Health program, in which primary care practice-based research networks throughout the country tested a variety of models to help patients reduce unhealthy behaviors.⁶¹ A review of eight projects funded under this program noted the recurring theme of collaboration between the practices and community programs, services, or websites and the crucial role of "boundary spanners."⁶² Boundary spanning took different forms: community outreach liaisons who were hired by practices, information technologies, and other strategies aimed at helping patients connect with useful resources in their community.^{59,63} This approach is part of a larger trend observed in other experiments. For example, Ackermann et al.⁶⁴ documented the effectiveness of using YMCA facilities to help implement the intensive lifestyle interventions described in the Diabetes Prevention Program trial and is now collaborating with community pharmacies.

These collaborations are examples of the cutting edge in high-quality behavioral counseling interventions. However, no matter how intensive, counseling alone is often insufficient to enable patients to overcome the challenges to changing behaviors. Adopting a new lifestyle and maintaining the changes beyond a few months are daunting challenges if the larger contextual factors that facilitate unhealthy behaviors or inhibit new behaviors remain unchecked. The built and commercial environments of neighborhoods, access to green outdoor spaces, and cultural and peer norms and expectations are among the important influences on dietary practices and physical activity.¹¹ Children and most non-elderly adults spend about half their waking hours at child care centers, schools, and worksites.⁶⁵ The policies, practices, and resources that exist in these settings are potentially more determinative of health behaviors than efforts in clinical settings, where most people spend only a few hours each year. Increasingly, public health leaders and employers recognize that intractable problems such as obesity require greater efforts than exhorting clinicians to offer behavioral counseling and increasing the reimbursement for counseling. The conditions of daily life that reinforce risky and unhealthy behaviors are paramount and must also be mitigated.

The redesign of conditions at the workplace has yielded important benefits, both for workers and employers. The effectiveness and cost effectiveness of worksite health promotion has been extensively reviewed.^{66,67} The

latest systematic review by the Task Force on Community Preventive Services found that such interventions can affect some health behaviors, biometric measures, and financial outcomes important to employers.⁶⁸ Major corporations in the U.S. have been persuaded by the business case and have invested in comprehensive worksite health promotion programs.⁶⁹

Efforts at the workplace, the doctor's office, and other sectors can yield benefits, but creating a community environment that promotes healthy behaviors requires coordination among them. When multiple sectors work in collaboration, the impact on the prevalence of unhealthy behaviors could potentially be enhanced. People traverse multiple domains in their daily lives and need support, reminders, and resources in several contexts for healthy behaviors to be sustained. A reinforcing constellation of norms, resources, and prompts at home, work, school, stores, parks, and eateries is necessary to create the environment for healthy living. Healthcare systems are familiar with the concept of patient-centered care, in which clinical practices are reoriented to serve the patient instead of accommodating the routines of physicians and hospitals.⁷⁰ An effective approach to health promotion requires a citizen-centered model. Rather than catering to people in isolated roles—as a student, employee, or customer—meaningful promotion of wellness requires a community-wide strategy that integrates and harmonizes the activities within particular sectors into a seamless whole.

This somewhat utopian parable in [Table 1](#) is meant to illustrate cross-sector collaboration under a citizen-centered model. Fred's experience as a citizen of Metaphor City in [Table 1](#) was transformed by the involvement of ten sectors and several public agencies in the Healthy Heart initiative, including:

1. employers;
2. health insurance plans;
3. social marketers/media;
4. wireless service providers;
5. municipal government (city council, zoning commission, parks and recreation, department of transportation, and health department);
6. public school system;
7. grocery stores;
8. restaurants;
9. physician practices; and
10. private land developer.

The story illustrates the potential for harnessing public-private partnerships (between city government and local businesses) and information technology (such as wireless services, bar code purchase data, and elec-

Table 1. Metaphor City

<p>Scenario 1: An Isolated Intervention. Fred, an overweight single parent in Metaphor City, puts his son on the school bus and drives to work. Automobiles are the only means of transit in Metaphor City, an industrial town with crowded highways and few green spaces. Fred's company has adopted a "get active" policy, but his job allows no work breaks or resources for exercise. Fred's office window looks out on a large billboard that advertises jumbo sandwiches for \$1.99. Fred's chronic back pain has limited his job performance, and he leaves work early for a doctor's appointment. For lunch, Fred stops for a jumbo sandwich and drives on to the doctor, who advises Fred to lose weight and orders an imaging study of his lumbar spine. Because the nearest supermarket is across town, on his drive home Fred stops to pick up fried chicken for dinner. He spends the evening watching TV with his son.</p>
<p>Scenario 2: Concerted Community-Wide Strategy. Under the Healthy Heart initiative, a coalition of sponsors coordinates efforts to transform daily routines in Metaphor City. Fred begins his day with a fresh fruit breakfast suggested by a free smartphone meal planner prompt (the wireless company is a Healthy Heart co-sponsor). Fred rides his bicycle to work, taking advantage of an alternative transportation incentive from his employer, and rides along pathways recently installed by the municipal department of transportation, another Healthy Heart cosponsor.</p>
<p>A Healthy Heart message, featuring the common look and logo designed by a local advertising agency for all cosponsors' use, fills the billboard outside Fred's office. Fred's employer has renovated space for a small exercise facility and locker room, where Fred showers after cycling to work. Participating Healthy Heart stores and eateries post nutritional labels on shelves and menus to designate heart-healthy foods. Fred's health plan, along with all other major insurers in the area, offers a Healthy Heart premium discount based on points earned at supermarkets and restaurants, so Fred gets points for the veggie wrap he eats for lunch on the way to his doctor's appointment. Points are calculated from bar code data for these products that are captured on Healthy Heart club cards.</p>
<p>Fred parks his bicycle at the doctor's office, another partner in the Healthy Heart initiative. Fred's doctor devotes the visit to Fred's back pain, but a prompt on her tablet computer reminds her to offer Fred free enrollment in a commercial weight-loss program. On his way home Fred cycles to the new neighborhood supermarket, which opened thanks to tax incentives from the city council. A large Healthy Heart banner hangs over the fresh produce aisle, where Fred finds the ingredients for the vegetable stir fry described on his smartphone's meal planner. Metaphor City Elementary School has been serving more nutritious foods and devoting curriculum time to wellness issues. At home, Fred's son talks about training for an upcoming walkathon and suggests that they walk the dog to the new lakeside park. The zoning commission had authorized a local developer to build the park on the grounds of an abandoned warehouse complex.</p>

tronic medical record prompts) to leverage and coordinate wellness efforts across sectors.

New York City provides a real-life case study of the results of this comprehensive approach.⁷¹ To address tobacco use, in 2002–2003 the city enacted legislation that increased cigarette taxes by 32% and promoted smoke-free workplaces and restaurants. It also launched an anti-tobacco advertising campaign and provided smokers with free nicotine replacement therapy. After 1 decade with no change in smoking prevalence, between 2002 and 2004 smoking prevalence decreased from 21.6% to 18.4%, and exposure to secondhand smoke declined from 28.1% to 21.5%.^{72,73} To address obesity, the city enacted legislation in 2006 to eliminate use of trans fats by chain restaurants, and by 2008 usage had decreased from 50% to less than 2%.⁷⁴ It passed legislation to require caloric labeling on menus^{75,76} and launched a campaign to curtail sugared soda consumption.⁷⁷

The public health department also launched intensive efforts to support prevention in the healthcare setting, including "academic detailing" visits, creation of a citywide diabetes registry, investment in a public health-oriented electronic health record for more than half of clinicians serving Medicaid patients, helping practices re-engineer workflow and provide patient-centered medical homes to improve prevention, and aggregating data from EHRs to link reimbursement to meaningful outcomes.⁷⁸

Experiments with less emphasis on legislation have occurred in multiple communities throughout the U.S., and positive outcomes are documented in the literature, primarily centered around school-based and worksite initiatives.^{79,80} "Shape Up Somerville," an initiative in one Massachusetts community to improve energy balance in elementary schoolchildren, represents one of the more comprehensive collaborative efforts. The successful school and community wellness program partnered with school food services, city departments, healthcare providers, before- and after-school programs, restaurants, and the media.⁸¹

These linkages and interactions among environments (home, school, and community) shaped new, healthier norms.⁷⁹ The intervention achieved its aim of decreasing BMI scores in the schoolchildren through a suite of integrated strategies that involved schools, parents, and the community. Communication and family/community involvement was included in all program elements: parents received newsletters with healthy eating and portion size tips, coupons for healthy foods at participating neighborhood stores, updates on new menu offerings, maps of safe pathways for children to walk or bike to school, and upcoming events. School curriculums provided more time but also innovative, fun ways to include physical activity within instruction time. School initiatives improved cafeteria equipment and training for staff on

healthy food preparation, addressed vending machines and a la carte items, and involved kids in taste-tests and votes for “vegetable of the month.” After school, school-children participated in daily physical activities, healthy cooking classes, and weekly nutrition education. Restaurants were coordinated to highlight healthier options on menus.

Infrastructure for Making Connections

As results from these initiatives accumulate, attention is shifting from questions about effectiveness—which seem increasingly apparent—to the implementation challenges of making it happen. Major questions surround how to sustain such models over time and to achieve scalability for broader implementation. The typical demonstration project is sponsored by short-term grants and unravels when the funding ends.

Sustainable collaborations can, however, be designed around successful business models. In Metaphor City’s second scenario, food establishments offered discounts to draw market share, tax incentives enticed grocers to open stores in “food deserts,” and health plans covered nutrition and activity interventions on a first-dollar basis to reduce obesity-related medical costs. The commercial feasibility of some innovations, however, is more speculative: the campaign by the ad agency, the menu planners offered by the wireless company, and the added exercise facility at the worksite provide uncertain return on investment.

Whether these investments are affordable for the various entities that would shoulder the costs and offer satisfactory payback over time is unclear. Stakeholders increasingly focus on the value proposition—the return on investment—to judge whether the health benefits make the best use of the dollar spent.⁸² Empirical data on the cost effectiveness of the citizen-centered model are limited and represent an important research priority to inform decisions by policymakers. Healthcare utilization and cost projection models that include the costs and benefits of community-level prevention interventions have been undertaken recently,^{83–85} but the government should invest more heavily in such research. Studies should document the extent to which the upfront costs to establish the infrastructure for coordinated care are offset by reduced disease burden and costs. Although the stereotype is that the prevention of chronic diseases yields only long-term economic benefits, decades after employers and health plans paid for the interventions, business research has determined that lower prevalence of obesity and smoking yields short-term benefits (e.g., reduced presenteeism) within 5 years, which corporations find attractive.⁸⁶

Ultimately, the larger challenge for community-based, citizen-centered health promotion, apart from political will and funding, is that the infrastructure to establish and maintain such collaborations exists in only isolated communities. Well-coordinated systems of partnership among healthcare providers, public health programs, schools, employers, and businesses do not occur without active efforts to arrange logistics and resources.

For example, a system that allows physicians to refer smokers to a quitline with the click of a button entails extensive preparatory work:

1. meetings among the entities to work out the details and to identify the information and resources that each party needs;
2. reprogramming the electronic medical record to generate prompts and dialogue boxes that are fast and easy for busy physicians;
3. automating electronic transfer of necessary referral data and contact details compliant with privacy rules;
4. developing procedures for enrolling patients referred by physicians and establishing financing arrangements to offset the costs and to invoice appropriate health plans.

In most instances, physicians and the community organizations with which they might partner are consumed with their primary duties and lack free time, staff, or resources to work out these details. The same is often true of potential partnerships among employers, health plans, retailers, and school systems. In many communities, the state or local public health department is the proper vested authority for this role, but agencies that are themselves strapped for resources are often consumed with performing traditional core public health functions.

A third party is often necessary to convene potential partners, solve logistic challenges, and pool resources to facilitate collaboration. For the majority of success stories involving effective community partnerships, third parties supported by philanthropies or public funding—a community organization or research institution—were key to “connecting the dots.”^{12,80,87} To make such collaborations scalable and sustainable over time in ordinary settings, where grant support and research investigators are lacking, an infrastructure for third-party support must be available to help communities undertake citizen-centered redesign. Each community must have access to an entity for on-the-ground assistance in building partnerships and designing solutions to help citizens sustain healthy behaviors.

Ideas for developing such an infrastructure are emerging. A commonly touted model is that of the U.S. Department of Agriculture’s cooperative extension service, which was established more than a century ago to help the

nation's farmers solve daunting agricultural challenges. The extension service involved a collaboration between farmers; federal, state, and county governments; and agriculture experts at land grant universities. The model was pivotal in modernizing farming and remains operational today.

A similar extension service could be established to support community efforts to improve health. The model proposed by Grumbach et al.⁸⁸ would include state or regional hubs, which would in turn support county agency offices and their extension agents. Each hub would include a university-based center for health services research and a state health department to focus on policy, networking, and collaboration. The hubs could also include quality improvement organizations, area health education centers, professional societies, and practice-based research networks. The extension agents would be a resource for information on best practices and assistance with building partnerships among worksites, schools, and healthcare providers.

Financing the Infrastructure

A sizable federal investment would be required to establish and maintain an infrastructure on this scale, but the federal government already did so when it invested in the agricultural extension service, and it still spends more than \$1 billion per year to support that program. A similar investment to help communities address the problems of obesity and unhealthy behaviors is probably justified to offset the economic losses from these health behaviors in healthcare costs and diminished corporate productivity and international competitiveness. Policymakers are beginning to accept this argument. In September 2009, the American Recovery and Reinvestment Act appropriated \$650 million for prevention and wellness initiatives at the federal, state, and local levels; \$373 million of this amount was allocated to communities to develop local programs to address physical activity, nutrition, obesity, and smoking.⁸⁹

Building on this initial investment, the healthcare reform legislation adopted by Congress in 2010 provided for the allocation of \$15 billion over 5–10 years for prevention and public health investments, a wellness trust, and “community transformation” grants.⁹⁰ The legislation for community transformation spelled out initiatives in multiple sectors: for creating “healthier school environments”; “the infrastructure to support active living and access to nutritious foods in a safe environment”; “programs . . . to increase access to nutrition, physical activity and smoking cessation, enhance safety in a community”; “worksite wellness programming and incentives”; “healthy options at restau-

rants and other food venues”; and “strategies to reduce racial and ethnic disparities, including social determinants of health.”⁹¹

Conclusion

In summary, lasting progress in helping populations to adopt and maintain healthy behaviors is probably best achieved at the community level through the coordinated efforts of multiple institutions and programs that reach citizens where they live, work, play, and study. Isolated efforts in any one domain, such as the clinical setting or the school cafeteria, can do only so much. The priority for policymakers is to develop the financing and infrastructure to help communities organize and sustain such collaborations.

The other challenge for communities is to set priorities in choosing which community-based interventions to emphasize. One consideration is public health burden and the attributable risk associated with the target conditions, such as obesity or tobacco use. Another factor is the strength of evidence of effectiveness; resources such as the Task Force on Community Preventive Services catalogue the supporting literature and help policymakers identify policy options supported by a compelling science base.⁹² The National Commission on Prevention Priorities, having established priorities for clinical preventive services, is now developing a priority ranking for population-based preventive measures, which communities can consider in setting their own priorities.⁹³

As already noted, people with low incomes and some minority groups have higher prevalence of behavioral risk factors and higher morbidity and mortality from preventable diseases. Efforts that address these populations and the unhealthy conditions in their neighborhood environments are likely to yield proportionately greater public health benefit. Focusing resources on the populations most likely to benefit and on evidence-based interventions that target public health priorities is likely to produce the greatest health gains and return on investment.

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