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ORIGINAL PAPER

# Fifty Communities Putting Prevention to Work: Accelerating Chronic Disease Prevention Through Policy, Systems and Environmental Change

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**Abstract** The burden of preventable chronic diseases is straining our nation's health and economy. Diseases caused by obesity and tobacco use account for the largest portions of this preventable burden. CDC funded 50 communities in 2010 to implement policy, systems, and environmental (PSE) interventions in a 2-year initiative. Funded communities developed PSE plans to reduce obesity, tobacco use, and second-hand smoke exposure for their combined 55 million residents. Community outcome objectives and milestones were categorized by PSE interventions as they related to media, access, promotion, pricing, and social support. Communities estimated population reach based on their jurisdiction's census data and target populations. The average proportion of each community's population that was reached was calculated for each intervention category. Outcome objectives that were achieved within 12 months of program initiation were identified from routine program records. The average proportion of a community's jurisdictional population reached by a specific intervention varied across interventions. Mean population reach for obesity-prevention interventions was estimated at 35%, with 14 (26%) interventions covering over 50% of the jurisdictional populations. For tobacco prevention, mean population reach was estimated at 67%, with 16 (84%) interventions covering more than 50% of the jurisdictional populations. Within 12 months, communities advanced over one-third of their obesity and tobacco-use prevention strategies. Tobacco interventions appeared to have higher potential population reach than obesity interventions within this initiative. Findings on the progress and potential reach of this major initiative may help inform future chronic disease prevention efforts.

**Keywords** Chronic disease prevention · Obesity · Nutrition · Physical activity · Tobacco · Community health · Policy · System · Environmental change

The findings and conclusions in this article are those of the authors and do not necessarily represent the official views of the CDC. Please check Appendix section for the CPPW Program Group.

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## Introduction

The burden of preventable chronic diseases is straining our nation's health and economy. Over 75% of annual health care expenditures in the United States, more than 2.5 trillion dollars, are spent treating and managing chronic diseases and conditions [1]. Chronic diseases and conditions—including heart disease, cancer, stroke, diabetes and arthritis—cause premature death, reduce quality of life, and increase medical costs for millions of Americans, including

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an estimated 52% of the working age population [2]. Three modifiable risk factors—physical inactivity, poor nutrition, and tobacco use—are responsible for the majority of chronic disease-related mortality [3]. To improve the nation's health and economy, concerted and comprehensive obesity and tobacco-use prevention efforts are urgently needed.

Individual behavior choices and changes are critical to preventing tobacco use and obesity. However, societal and environmental forces that facilitate or discourage healthy behaviors can strongly influence individual choices and behaviors. Sustainable, high-impact policy, system, and environmental (PSE) interventions can reach more people. Tobacco use, sedentary behavior, and consumption of unhealthy food and beverages are more common in settings characterized by easy access to unhealthy products, widespread advertising and price incentives for tobacco and low-nutrition food and beverages, lack of infrastructure for active living, and lack of alternatives to unhealthy behaviors. In contrast, healthy behavior choices can be supported by settings that offer tobacco-free environments, affordable nutritious foods, and safe and regular opportunities for physical activity [4–6]. Addressing these challenges through PSE changes, as described in the Health Impact Pyramid [7], increases healthy options for communities and helps to make the healthy choice easier for individuals [6]. Policy change, used to help control many communicable diseases, has been recommended by the Institute of Medicine as having great potential for chronic disease prevention [7].

Since the mid-1990s, communities and states across the United States have formed coalitions to advance an array of broad-based PSE changes such as requiring improved physical education in schools; creating safe options for walking and biking; enhancing access to nutritious foods; increasing prices for tobacco and unhealthy food and beverages; and implementing smoke-free policies. The Centers for Disease Control and Prevention (CDC) and several foundations (e.g., the Kaiser Family Foundation, Robert Wood Johnson Foundation, California Endowment, Kresge Foundation, Nemours Foundation, and W. K. Kellogg Foundation) have supported communities in these efforts with the shared vision of "healthy people living in healthy places" [8]. While many of these communities have successfully demonstrated that community-level changes can lead to substantive and desirable public health outcomes [9, 10], specific goals have varied, and funding often has been insufficient to achieve widespread change. In addition, understanding of potential population reach and impact for many community-based interventions has been limited [11].

Building on the practice base of community-level change, and in response to our nation's health care costs and economic crisis, the Department of Health and Human Services, through CDC, developed the *Communities Putting Prevention to Work (CPPW) Initiative* to accelerate and expand community- and state-level PSE work in chronic disease prevention. In 2010, CDC awarded more than $400 million to support the CPPW initiative's community component involving 50 communities for a 2-year period. The goal of this funding was to support PSE changes that would provide sustained benefits for residents of the funded communities. Over 55 million people—or nearly 1 in 5 Americans—reside in the 50 funded communities. We report here the core program and interventions selected by these communities, the intervention progress rates at 12 months, the average proportion of the population across communities that could be reached by each intervention, and the overall potential population reach per intervention. Findings on the progress and potential reach of this major initiative can help inform future chronic disease prevention efforts.

## Program Description

Through a competitive process in 2010, CDC funded health departments serving 50 communities, including 14 large cities, 12 urban areas, 21 small cities and rural counties, and 3 tribes in 32 states and the District of Columbia (Fig. 1). The program defined "community" by health department catchment area. Small cities and rural counties with populations less than 500,000 were funded through sub-grants made by their state health departments that oversaw the CPPW grant. Population size among the jurisdictions ranged from 5,000 in Ringgold County, Iowa, to over 10 million in Los Angeles County, California. CDC funded 28 communities to prevent obesity by improving nutrition and increasing physical activity; 11 to prevent tobacco use and secondhand smoke exposure; and 11 to address both obesity and tobacco. The CPPW awards supported community work for a 24-month period that included an initial 4-month period for developing community action plans. Funding was proportionate to population size and to the goals of proposed objectives, and ranged from $1 million for small communities to more than $30 million for large communities implementing both obesity- and tobacco-related interventions.

## Technical Assistance, Media, and Evaluation Support

In addition to funding, grantees received technical assistance, media, and evaluation support from CDC. CDC provided technical assistance and training through CDC staff, Action Institutes to train community leadership teams in PSE work, peer-mentoring communities, national

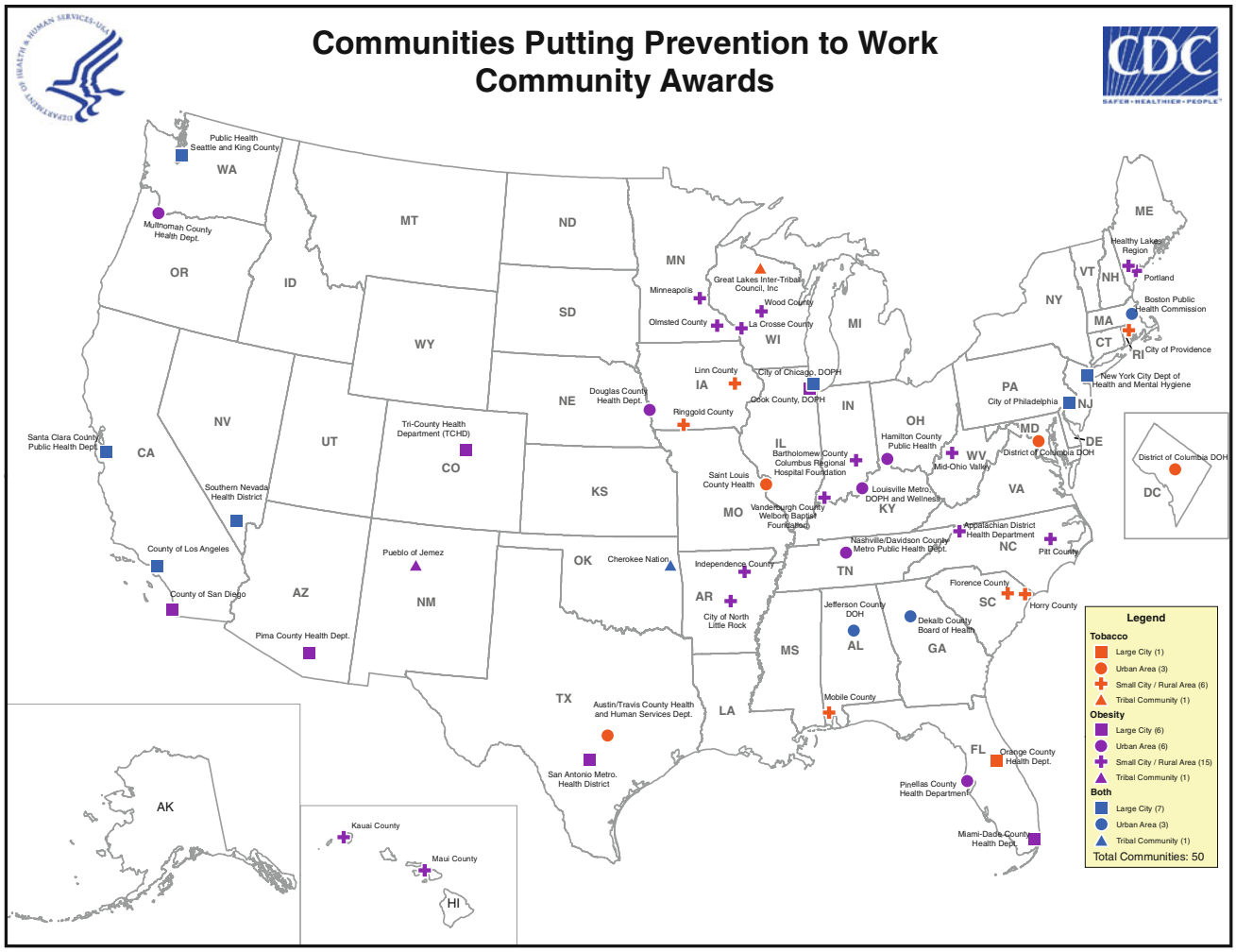


**Fig. 1** Map of CPPW communities

organizations, specialized technical experts, webinars, tool kits, and other resources. Technical assistance covered core media, access, point-of-decision information, price, and social support (MAPPS) strategies [12] for tobacco, nutrition, and physical activity, as well as coalition-building, health equity, media, and evaluation. To complement and reinforce community interventions, CDC supported a national CPPW media initiative, and communities implemented local media interventions that leveraged the national media strategy with focused prevention and wellness messages and advertisements. Activities within communities included targeted and culturally tailored media interventions to reach, engage, and influence priority and vulnerable populations, and the population at large.

CPPW's robust evaluation plan included local and national program monitoring and evaluation, behavioral surveillance, a cost study, case studies, systems dynamic modeling [13], and enhanced biometric evaluations that measure individual activity. Program monitoring occurred through monthly calls between CDC project officers and communities' project directors. This process informed monthly and quarterly reporting on outcome objectives and milestones.

## Community Action Plans and Strategies

To implement PSE interventions, community grantees convened community leadership teams comprising representatives from public health, education, planning, healthcare, transportation, agriculture, business, volunteer, local government, housing, and other sectors. Grantees engaged in participatory stakeholder processes to develop action plans that include activities in each of the five MAPPS areas. These strategy areas collectively hold significant potential to improve health behaviors by changing community policies and environments in multiple settings in which people live, work, and play, including schools, worksites and businesses, health care settings, housing, and other places. In accordance with U.S. law, no Federal funds provided by CDC were permitted to be used by community grantees for lobbying or to

influence, directly or indirectly, specific pieces of legislation at the federal, state, or local levels. CDC technical experts provided training and substantive input to ensure compliance with anti-lobbying provisions and to ensure that the final strategies selected would have an impact, reach the entire jurisdiction, and address special considerations for populations characterized by health disparities.

One year following submission of their revised action plans, CPPW community leadership teams and local staff were working on milestones related to over 790 PSE-related outcome objectives. For most communities (44), their first-year timeline spanned from June 2010 to June 2011; a second wave of funding, including six new communities, supported a first program year from September 2010 to September 2011. To summarize the experiences of CPPW communities and to determine the number of communities pursuing each specific intervention, these objectives and milestones were reviewed and grouped into intervention categories aligned with the MAPPS strategies.

## Improving Nutrition

Thirty-eight (97%) of 39 communities that chose to improve nutrition used media strategies to promote healthy food and beverage choices (Table 1). All communities addressing obesity were working to enhance access to healthy food. Approximately two-thirds worked on improving the availability, quality, and affordability of healthy foods in corner stores; 82% sought to improve nutritional content through policies, guidelines, or standards; and 87% used wellness policies to improve access to healthy food. To increase affordability of healthy choices and to address health disparities, 62% worked with clients of the Supplemental Nutrition Assistance Program and other food assistance initiatives to facilitate their purchasing of fresh fruit and vegetables. In addition, 85% supported local food production through community, school, and home garden promotion, while 59% worked on procurement policies. Point-of-purchase and promotion were addressed by 85% of communities with obesity-related initiatives, with 41% working on produce placement and attractiveness, and 72% working on signage for healthy food choices. Likewise, 72% worked on pricing strategies, including 62% that sought to change prices of healthier foods and beverages relative to the cost of less healthy foods. In addition, 54% promoted breastfeeding through creation of baby-friendly hospitals [14] and workplace breast-feeding practices (Table 1).

## Increasing Physical Activity

Thirty-eight (97%) of 39 communities addressed obesity prevention by using media to encourage physical activity. To improve access to physical activity, these communities worked on policies that support the creation of sidewalks and bike lanes (56%), urban design and land use policies that encourage physical activity (79%), and policies to require daily physical activity in childcare and afterschool settings (64%). Promotion strategies such as signage for transportation options were pursued by 64% of communities, including 46% of communities that worked to improve signage to promote use of public transportation and bike lanes. Finally, 87% of communities worked to improve social support services such as expansion of safe routes to school, and 31% of communities pursued workplace physical activity program policies (Table 2).

## Reducing Tobacco Use and Secondhand Smoke Exposure

All 22 communities addressing tobacco prevention used media to advance PSE changes. The 12 communities currently without comprehensive smoke-free policies (defined by CDC as policies that result in smoke-free worksites, restaurants, and bars [11]) worked toward that goal (Table 3). Twenty-one of 22 communities (95%) addressing tobacco prevention worked to reduce access to tobacco products and secondhand smoke exposure by expanding smoke-free policies, either through new comprehensive policies or through smoke-free policies in multi-unit housing, parks, and beaches. All of these communities used pricing strategies to reduce tobacco use and decrease exposure to secondhand smoke, including 55% working to increase licensing and other fees, and 45% seeking to limit free tobacco samples. Finally, all communities expanded quitline and other cessation services (Table 3) as part of their social support activities.

## Implementation Progress

CPPW grantees accelerated the timelines usually associated with pre-intervention work, including recruiting and hiring staff; developing, competing, and awarding contracts and mini-grants; engaging community members and stakeholders to refine community action plans; working with CDC on revisions to strengthen the quality of the plan; and submitting final plans within 4 months of their awards. To compare implementation progress across PSE interventions in communities, we reviewed community achievements at 12 months into their implementation schedule. Communities were considered to have achieved progress on an intervention if any of the community's outcome objectives or milestones coded under that intervention category was marked as completed in CDC's program monitoring database. For example, we considered a community pursuing healthy

**Table 1** Distribution, progress rates, and population reach of CPPW nutrition interventions (N = 39)

| MAPPS category (n, % among communities) strategy/intervention | Community n (%) | Progress rate at 12 M, n (%)[a] | Potential population reach (in 1,000) | Mean proportion of population reached (%)[b] |
|---|---|---|---|---|
| Media (38, 97%) | | | | |
| Media to support improved nutrition to prevent obesity | 38 (97%) | 10 (26%) | 29,166 | 74 |
| Access (39, 100%) | | | | |
| Farm to institution, including schools, worksites, hospitals | | | | |
| Supporting local food production (e.g., community gardens, school gardens, home gardens) | 33 (85%) | 19 (58%) | 6,944 | 31 |
| Systems or infrastructure changes to facilitate direct farm to institution food supplies | 25 (64%) | 11 (44%) | 7,522 | 33 |
| Healthy food/drink availability | | | | |
| Competitive foods | 12 (31%) | 4 (33%) | 709 | 8 |
| Enhance access to healthy food retailer or healthier retail food, not transportation | 26 (67%) | 14 (54%) | 17,956 | 53 |
| Enhance access to tap water through environmental supports | 4 (10%) | n/a[c] | n/a | n/a |
| Enhance usability of SNAP/WIC/EBT at healthier food retailers | 24 (62%) | 12 (50%) | 4,509 | 9 |
| Healthy meetings | 6 (15%) | n/a | n/a | n/a |
| Healthy vending | 23 (59%) | 15 (65%) | 5,937 | 27 |
| Incentives to offer healthier foods/choices | 11 (28%) | 2 (18%) | 1,315 | 58 |
| Improve nutritional content through policies, guidelines or standards[d] | 32 (82%) | 19 (59%) | 6,822 | 30 |
| Improve or provide low cost transportation to healthier food venues | 5 (13%) | n/a | n/a | n/a |
| Wellness policy | 34 (87%) | 20 (59%) | 11,038 | 36 |
| Zoning/land use policies/joint- use agreements (e.g., for farmers markets/community gardens) | 19 (49%) | 6 (32%) | 12,738 | 59 |
| Limit unhealthy food/drink availability (whole milk, sugar- sweetened beverages, high-fat snacks) | 22 (56%) | 5 (23%) | 10,973 | 33 |
| Procurement policies and practices | 23 (59%) | 12 (52%) | 10,405 | 35 |
| Reduce sodium through purchasing actions, labeling initiatives, restaurant standards | 4 (10%) | n/a | n/a | n/a |
| Point of purchase/promotion (33, 85%) | | | | |
| Menu labeling | 13 (33%) | 5 (38%) | 12,223 | 77 |
| Produce placement and attractiveness | 16 (41%) | 4 (25%) | 3,442 | 33 |
| Signage for healthy vs. less healthy items | 28 (72%) | 9 (32%) | 8,723 | 48 |
| Price (28, 72%) | | | | |
| Change prices of healthier foods and beverages relative to the cost of less healthy foods | 24 (62%) | 9 (38%) | 11,650 | 43 |
| Incentives or price discounts for purchase of healthy foods when using SNAP/WIC/EBT | 11 (28%) | 4 (36%) | 2,380 | 16 |
| Social support and services (21, 54%) | | | | |
| Breastfeeding and maternity care practice policies | 21 (54%) | 8 (38%) | 654 | 16 |
| Other (26, 67%) | | | | |
| Health education/event | 22 (56%) | 8 (36%) | 1,189 | 13 |
| Information systems | 4 (10%) | n/a | n/a | n/a |
| Policy enforcement | 10 (26%) | 3 (30%) | 13,311 | 61 |

[a] Progress rate is defined as proportion of communities that had achieved this PSE change in at least one setting within 12 months of approved action plan

[b] Mean proportion of potential population reached per intervention across communities

[c] Counts are not included for those interventions in which fewer than 25% of the communities are implementing

[d] Includes the MAPPS strategy of "eliminate transfat through purchasing actions, labeling initiatives, restaurant standards."

**Table 2** Distribution, progress rates, and population reach of CPPW physical activity interventions (N = 39)

| MAPPS category (n, % among communities) strategy/intervention | Community n (%) | Progress rate at 12 M n (%)[a] | Potential population reach (in 1,000) | Mean proportion of population reached (%)[b] |
|---|---|---|---|---|
| Media (38, 97%) | | | | |
| Media to support improved physical activity | 38 (97%) | 16 (42%) | 35,441 | 68 |
| Access (39, 100%) | | | | |
| City planning, zoning and transportation | | | | |
| Improve access to public transportation | 6 (15%) | n/a[c] | n/a | n/a |
| Infrastructure changes to support biking or walking | 22 (56%) | 4 (18%) | 6,901 | 41 |
| Urban design and land use policies | 31 (79%) | 15 (48%) | 29,341 | 79 |
| Plans that support biking or walking | 24 (62%) | 8 (33%) | 17,357 | 74 |
| Daily physical activity policies in afterschool/childcare settings | | | | |
| PE/physical activity requirement afterschool/childcare | 25 (64%) | 13 (52%) | 902 | 5 |
| Restrict screen time in afterschool/day care | 10 (26%) | 5 (50%) | 482 | 8 |
| Daily quality PE policies in schools | | | | |
| PE/physical activity requirement schools | 18 (46%) | 5 (28%) | 1,026 | 11 |
| Safe attractive accessible places for activity | | | | |
| Create places for physical activity | 25 (64%) | 6 (24%) | 6,587 | 29 |
| Enhance personal safety in areas where persons are or could be physically active, not safe routes to school | 17 (44%) | 3 (18%) | 7,250 | 55 |
| Environmental supports to promote walking and cycling and other physical activity | 22 (56%) | 7 (32%) | 9,785 | 39 |
| Joint-use agreement | 19 (49%) | 6 (32%) | 2,941 | 29 |
| Other | | | | |
| Policy enforcement | 13 (33%) | 4 (31%) | 2,168 | 23 |
| Screen-time (Other) | 5 (13%) | n/a | n/a | n/a |
| Wellness policy (Not require daily, quality PE) | 35 (90%) | 14 (40%) | 4,003 | 20 |
| Point of purchase—promotion (25, 64%) | | | | |
| Signage for neighborhood destinations in walkable/mixed-use areas (library, park, shops, etc.) | | | | |
| Point-of-decision prompts | 3 (8%) | n/a | n/a | n/a |
| Signage for neighborhood destinations in walkable/mixed-use areas | 15 (38%) | 0 (0%) | 8,322 | 7 |
| Signage for public transportation, bike lanes/boulevards | 18 (46%) | 5 (28%) | 8,426 | 47 |
| Price (27, 69%) | | | | |
| Incentives for active transit | 9 (23%) | n/a | n/a | n/a |
| Reduced price for park/facility use | 6 (15%) | n/a | n/a | n/a |
| Subsidized memberships to recreational facilities | 10 (26%) | 3 (30%) | 521 | 7 |
| Voucher policies to promote physical activity | 19 (49%) | 8 (42%) | 3,645 | 26 |
| Social Supports and Services (34, 87%) | | | | |
| Safe routes to schools | 22 (56%) | 11 (50%) | 3,745 | 10 |
| Workplace, faith, park, neighborhood activity groups | | | | |
| Activity groups | 12 (31%) | 6 (50%) | 1,446 | 11 |
| Worksite physical activity programs | 12 (31%) | 5 (42%) | 215 | 4 |
| Other | | | | |
| Health impact assessment or similar | 15 (38%) | 8 (53%) | 10,551 | 65 |
| Health education/event | 23 (59%) | 11 (48%) | 3,995 | 22 |
| Information systems | 10 (26%) | 2 (20%) | 6,519 | 34 |

[a] Progress rate is defined as proportion of communities that have enacted this intervention in at least one setting within 12 months of approved action plan

[b] Mean proportion of potential population reached per intervention across communities

[c] Counts are not included for those interventions in which fewer than 25% of the communities are implementing

vending policies in multiple settings to have made progress if it had achieved a healthy vending policy within the school setting even if other settings for healthy vending policies, such as workplaces, had not yet been achieved. All achievements were verified by CDC project officers who conducted phone calls and site visits to all communities.

**Table 3** Distribution, Progress Rates, and Population Reach of CPPW Tobacco Interventions (N = 22)

| MAPPS Category (n, % among communities) strategy/intervention | Community n (%) | Progress rate at 12 M n (%)[a] | Potential population reached (in 1,000) | Mean proportion of population reached (%)[b] |
|---|---|---|---|---|
| Media (22, 100%) | | | | |
| Ban branded promotional items and prizes | 2 (9%) | n/a[c] | n/a | n/a |
| Ban brand-name sponsorships | 4 (18%) | n/a | n/a | n/a |
| Hard hitting counter-advertising | 16 (73%) | 8 (50%) | 14,747 | 78 |
| Media and advertising restrictions consistent with federal law | 5 (23%) | n/a | n/a | n/a |
| Other | | | | |
| Media to support policy, systems and environmental change | 21 (95%) | 11 (52%) | 15,114 | 82 |
| Media to change behavior | 19 (86%) | 7 (37%) | 14,867 | 74 |
| Access (22, 100%) | | | | |
| Policy ending self-service displays and vending | 3 (14%) | n/a | n/a | n/a |
| Usage bans (i.e., 100% smoke-free policies or 100% tobacco-free policies) | 21 (95%) | 15 (71%) | 9,477 | 80 |
| 100% smoke/tobacco-free school campuses | | | | |
| Restrict sales (e.g. Internet; sales to minors; stores/events without tobacco) | 9 (41%) | 3 (33%) | 9,078 | 60 |
| Zoning restrictions | | | | |
| Zoning restrictions (e.g., outlet density) | 13 (59%) | 3 (23%) | 7,245 | 67 |
| Other | | | | |
| Policy enforcement | 17 (77%) | 7 (41%) | 11,853 | 78 |
| Point of Purchase (17, 77%) | | | | |
| Product placemen | | | | |
| Point of purchase—Other | 11 (50%) | 0 (0%) | 6,503 | 61 |
| Restrict point-of-purchase advertising as allowable under federal law | 12 (55%) | 1 (8%) | 2,414 | 80 |
| Price (22, 100%) | | | | |
| Use evidence-based pricing strategies to discourage tobacco use | | | | |
| Pricing strategy—fees | 12 (55%) | 4 (33%) | 1,681 | 85 |
| Reducing out-of-pocket costs for cessation therapies (e.g., vouchers, changes in insurance, but not nicotine-replacement therapy distribution) | 11 (50%) | 2 (18%) | 3,826 | 46 |
| Pricing strategy—other | 7 (32%) | 2 (29%) | 2,585 | 78 |
| Ban free samples and price discounts | | | | |
| Pricing strategy—restrict free samples | 10 (45%) | 3 (30%) | 2,758 | 66 |
| Social Supports and Services (22, 100%) | | | | |
| Provide quitline and other cessation services | | | | |
| Quitline and other cessation services | 22 (100%) | 16 (73%) | n/a | n/a |
| Other | | | | |
| Health education/event | 15 (68%) | 11 (73%) | 2,020 | 20 |
| Information systems | 10 (45%) | 4 (40%) | 2,530 | 24 |

[a] Progress rate is defined as proportion of communities that have enacted this intervention in at least one setting within 12 months of approved action plan

[b] Mean proportion of potential population reached per intervention across communities

[c] Counts are not included for those interventions in which fewer than 25% of the communities are implementing

Within 12 months of their action plan approval, communities had implemented PSE changes in at least one setting for 36% of all interventions, including 40% of tobacco interventions and 35% of obesity interventions. Twelve-month intervention progress was substantial for interventions such as improving nutritional content through PSEs (59%), healthy vending (65%), and nutrition wellness policies (59%). Progress rates were lower among those implementing

enhancements for personal safety in areas where persons could be physically active, incentives to offer healthier foods/choices, and signage for neighborhood destinations in walkable/mixed-use areas (Tables 1, 2).

For those communities pursuing tobacco-use prevention, 12-month intervention progress was higher among communities pursuing prevention policies related to tobacco use (71%), quitline and other cessation services (73%), and tobacco health education and events (73%). Twelve-month intervention progress rates were lower among those pursuing prevention policies related to other point of purchase interventions, restriction of point-of-purchase advertising as allowable under federal law, and reduction of out-of-pocket costs for cessation therapies (Table 3).

## Population Reach

As a component of program reporting, communities estimated potential population reach by using census and target population data for each intervention objective in their action plans. Population reach was defined as the number of unique individual residents who had the potential to be covered by a given intervention. For example, estimates of potential reach of school policies were based on the student population of the school district and did not include infants, children, or adults outside of the age range of the student population. Community reach estimates for interventions were verified by using census, school district, or other publically available data and applying a consistent methodology. All the estimates were rounded to the nearest thousand. The 2009 US Census estimates were used for jurisdiction-wide population for counties and cities; tribal populations were defined by grantees' tribal jurisdiction for CPPW by using census data for those persons identified as American Indian in the jurisdiction. The potential reach data for each intervention is independent of other interventions being pursued in the same community. Thus, the counts were not summed across interventions because some persons might be counted in more than one intervention category for any given community. However, each person is only counted once in each intervention category. Because potential population reach was heavily influenced by the entire population size of communities pursing a particular intervention, we also calculated the average proportion of the population reach across communities for each intervention. Estimated population reach of individual nutrition and physical activity interventions ranged from 9,000 to over 35 million; for tobacco interventions, the estimated reach for a single intervention ranged from 194,000 to more than 15 million.

Of note, these counts include only residents of CPPW jurisdictions. However, some communities opted to pursue state-level interventions, such as statewide childcare standards, rather than more local school district, city, or county-level change. If communities using a strategy of state-level PSE change to achieve their local jurisdiction PSE outcomes were to include the state population into their potential population reach numbers, their total reach estimates would exceed 150 million persons. Further, if commuters and visitors to communities were included in the reach counts for policies that might have impacted them, the estimated reach would be even higher than those presented here.

On average, interventions chosen by CPPW communities were estimated to reach 43% of their jurisdictional population. For tobacco-related interventions, the average proportion of the population reached per intervention was 67%, with 16 (84%) strategies reaching more than half of the population. The average proportion of the population reached for the 54 obesity prevention interventions was 35%, with 14 (26%) strategies covering, on average, more than half of the jurisdictional population. Mean population reach varied by intervention and was highest for media- and policy-related interventions and lowest for those interventions addressing only a subset of the population, such as children in childcare settings, adults in worksites, or food assistance recipients.

## Discussion

In the first 12 months of the CPPW initiative, 50 communities across the United States advanced implementation of key obesity and tobacco PSE prevention strategies covering millions of people. CPPW communities successfully worked from the prescribed MAPPS strategies and adapted them to their local circumstances. Communities selected, planned, and implemented strategies that had substantial overall population reach. Overall, the program has the potential to reach over 55 million people within the funded jurisdictions and an estimated additional 100 million people who could benefit either as visitors or from state-level changes emanating from CPPW community efforts. Within 12 months of the approval of their action plans, communities achieved at least one objective for a third of their planned intervention strategies.

Tobacco- and obesity-prevention interventions differed with regard to strategies, progress rates, and population reach rates. These differences between tobacco- and obesity-related efforts might reflect the still-emerging evidence base for obesity PSE work and the broad nature of national obesity priorities [15–17], whereas tobacco strategies draw from several decades of experience, a robust scientific evidence base [18–24], and cohesive state and national priorities [25–27]. However, the evidence base for tobacco prevention accumulated as interventions were being implemented, and a similar approach of evaluating

promising strategies with high population reach as they are being implemented are likely needed to build the evidence base for obesity prevention [13, 28–31].

Although the CPPW experience to date provides useful lessons learned, the program data presented here are subject to at least four limitations. First, a small number of CPPW communities changed their plans after 12 months in response to shifting local circumstances; therefore, final outcome objectives might differ slightly from those reported here. Second, although population reach data were derived from local program estimates provided by each community and verified against available census data, we cannot ascertain whether all potential beneficiaries received, or will receive, meaningful health benefits. Third, implementation fidelity and approaches vary across communities, further influencing population reach. Finally, population impact of PSE change strategies is dependent on several factors, including population reach, the effect size of the intervention, and the intensity and rate of exposure to the intervention's health benefits. Effect size for some PSE interventions has not been established, and although impact modeling will be conducted as part of the CPPW evaluation plan, much of the longer-term impact will not be evident at the population level for many years. Therefore, we are unable to fully assess population impact of the interventions. Despite these limitations, the CPPW program's intervention-specific population reach estimates contribute to a much needed framework for strategy selection, and final outcomes of CPPW help expand the practice and evidence base for PSE interventions and refine a targeted set of priorities for local action [32].

As our nation moves forward with new chronic disease prevention initiatives, such as CPPW and CDC's Community Transformation Grant program [33], we will need to build on the experiences of and lessons learned from CPPW and other programs to accelerate approaches for achieving population impact. These lessons will help to define additional ways to empower community stakeholders with the best available information on population impact so that community engagement [34] and related efforts will be maximized.

Our nation faces enormous and interrelated economic and health challenges. The United States continues to rank first in the world in health care expenditures per capita [35] and now ranks 50th in the world for life expectancy at birth [36]. CPPW provided an historic opportunity for communities to act boldly to confront obesity and tobacco use prevention for 55 million people. Future work can build on the CPPW approach and will benefit from strategic selection of priorities, robust support for individual community needs, and enhanced accountability to ensure fidelity to the design of program plans. Investment in such prevention efforts may be critical to improve quality of life for all Americans and to control increasing health care costs.

## Appendix: CPPW Program Group

CDC-Atlanta: Elizabeth Reimels, Suzanne Gates, Amy Holmes-Chavez, Carolyn Brooks, Elijah West, Jeff McKenna. From ICF International: Alicia Swann. From the CPPW projects: Teri Chafin (Jefferson County, Alabama); Jim McVay (Alabama); Donald Gates (Pima County, Arizona); Andrea Ridgway (Arkansas), Linda Aragon (Los Angeles County, California); Bonnie Broderick (Santa Clara County, California); Tracy Delaney (San Diego County, California); Paul Simon (Los Angeles County, California); Lisa Pivec (Cherokee Nation); Stacy Weinberg (Tri-County Health Department, Colorado); Vance Farrow (Washington, District of Columbia); Claude Dharamraj (Pinellas County, Florida); Yolanda G. Martinez (Orange County, Florida); Karen Weller (Miami-Dade County, Florida); Sandra Elizabeth Ford (DeKalb County, Georgia); Jeff Muse (Great Lakes Inter-tribal Council); Dileep G. Bal (Kauai, Hawaii); Lorrin W. Pang (Maui, Hawaii); Adam Becker (Chicago, Illinois); Stacy Ignoffo (Chicago, Illinois); Christina Welter (Cook County/Chicago, Illinois); Dawn M. Adams (Indiana), Bonnie Mapes (Iowa); Matt Zahn (Louisville/Jefferson County, Kentucky); Debra Wigand (Maine); Anne McHugh (Boston, Massachusetts); Margaret Reid (Boston, Massachusetts); Rachel Cohen (Minnesota); Barry Freedman (St. Louis County, Missouri); Mary Balluff (Douglas County/Omaha, Nebraska); Deborah Williams (Southern Nevada); Elizabeth Kilgore (New York City, New York); Lynn Silver (New York City, New York); Ruth Petersen (North Carolina); Stacy Wegley (Hamilton County, Ohio); Sonia Manhas (Multnomah County, Oregon); Giridhar Mallya (Philadelphia, Pennsylvania); Kristyn Yepa (Pueblo of Jemez); Ana Novais (Rhode Island); Sharon Biggers (South Carolina); Alisa Haushalter (Nashville/Davidson County, Tennessee); Philip Huang (Austin/Travis County, Texas); Christine Rutherford Stuart (San Antonio, Texas); James Krieger (Seattle/King County, Washington); Joe Barker (West Virginia); Susan Uttech (Wisconsin).

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